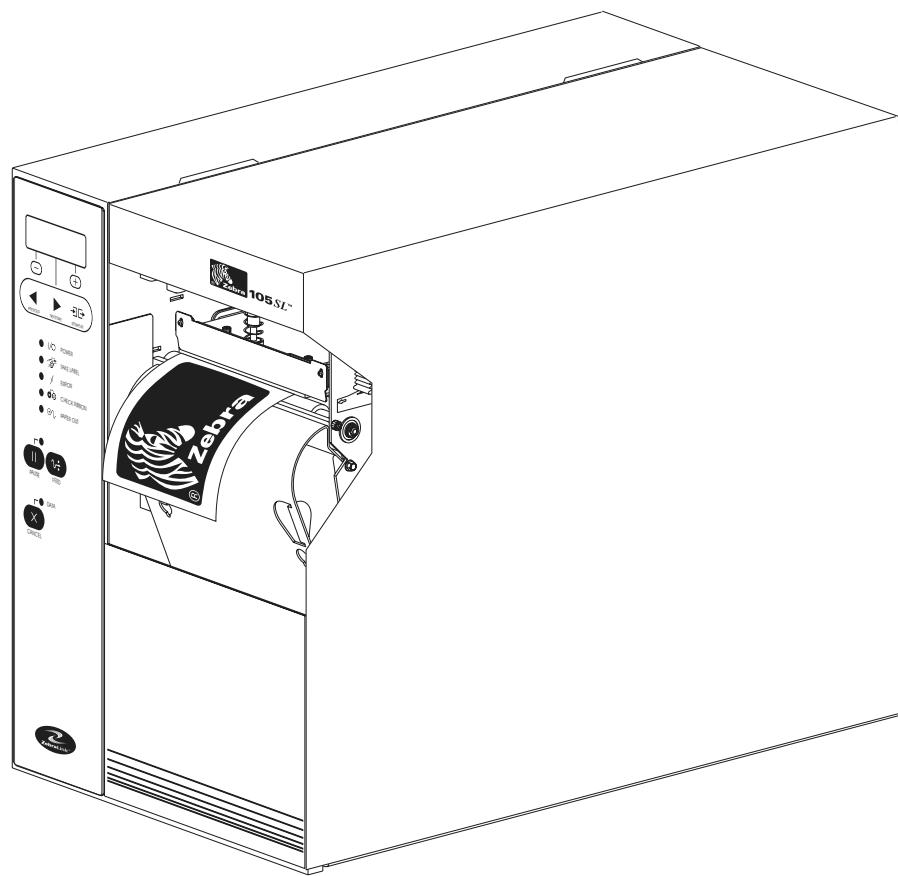


Zebra 105SL™

Maintenance Manual



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SECTION 1

DESCRIPTION OF EQUIPMENT

DESCRIPTION

The Zebra 105SL printer is a versatile label and ticket printer designed to print high quality bar codes, various sizes and styles of alphanumeric characters, and graphics in either the thermal transfer or direct thermal mode.

The 105SL printer has the flexibility to meet a variety of applications. The Zebra Programming Language II (ZPL II) allows the programmer to format the printed material. ZPL II is transparent to protocol converters and allows the 105SL printer to be easily integrated with most systems and host mainframes.

The printer identification label on the rear of the unit identifies the configuration of the printer. The format of the Configuration Number is as follows:

10500-1XXX-XXXX

This manual covers the two major configurations of the 105SL. The significant differences between configurations is denoted by the first digit of the second group of numbers. If that digit is a zero (0) or one (1), the 105SL is equipped with a 25-pin serial interface connector, has a black main frame, and has separate AC and DC power supplies. If that digit is a two (2) or three (3), the 105SL is equipped with a 9-pin serial interface connector, has a silver main frame, and has an integrated AC/DC power supply.

MEDIA HANDLING MODES

Tear-off mode allows you to tear off each label, or a strip of labels.

In **peel-off mode**, backing material is peeled away from the label as it is printed. After this label is removed from the printer, the next one is printed.

In **cutter mode**, the printer automatically cuts the label after a specified length of media or a specified number of labels has been printed.

In **rewind mode**, the media and backing are rewound onto a core as the labels are printed.

PRINTING METHODS

There are two methods of printing: direct thermal and thermal transfer. The choice of printing method can be made via the front panel controls and LCD or with the ZPL command ^MT.

Thermal Transfer method. In this method of printing, the ink is carried on special ribbon material and transferred directly onto the paper media by the printhead.

NOTE: *For thermal transfer print mode, load ribbon before performing calibration.*

SECTION 1

DESCRIPTION OF EQUIPMENT

In thermal transfer printing, the printhead is in contact with a ribbon that releases ink above a certain threshold temperature. The image is formed when heat from the printhead is transferred to the ribbon, releasing ink directly to the substrate (media) to produce the printed image. The resulting image is stable and is not affected by exposure to UV or sunlight as with direct thermal substrate.

Direct Thermal method. Ribbon is not used in this method. A substrate, typically paper, is coated with a chemical that changes to a dark color upon exposure to heat over a period of time.

NOTE: *Do NOT load ribbon if the printer is to be used in the direct thermal mode.*

The image is not formed by burning, but by the chemical reaction in the coating brought on by the heat from the printhead. Small electrical heaters in the thermal printhead are controlled by the logic in the printer. The heaters are in the form of rectangular dots or bars and, when activated, create an image in the substrate that closely matches the size and shape of the heating element.

SCOPE

This section of the manual is intended to supplement the printer's User's Guide by providing additional information to aid the service technician in troubleshooting and maintaining the printer.

OPTIONS

Printhead 300 dpi (12 dots/mm)	Full width rotary knife cutter
Media rewind spindle	Label peel and liner rewind
Internal fanfold media supply bin	Reflective (black mark) media sensor
ZebraNet Printer Server II	Twinax or Coax Interface option
PCMCIA Flash memory slot	BAR-ONE Windows-based WYSIWYG on-screen label design and print application software

ZEBRA PROGRAMMING LANGUAGE (ZPL AND ZPL II)

Communicates in printable ASCII characters	Compatible with mainframe, mini-computer and PC hosts
Downloadable graphics, scalable and bitmap fonts, label templates and formats	Adjustable print cache
Data compression	Automatic memory allocation for format while printing
Automatic serialization of fields	Format inversion
Mirror image printing	Four-position field rotation (0°, 90°, 180°, 270°)
Slew command	Programmable label quantity with print, pause, and cut control
Status message to host upon request	ZBI™ (Zebra Basic Interpreter)

BAR CODE SYMOLOGIES

Bar code ratios — 2:1, 7:3, 5:2, & 3:1

2 dimensional bar codes:

- CODABLOCK
- PDF-417
- Micro PDF-417
- Code 49
- Data Matrix
- Maxi Code
- QR-Code
- Code 128 (with subsets A, B, and C and UCC case C codes)

Linear bar codes:

- Code 11
- Code 39
- Code 93
- ISBT-128
- UPC-A, UPC Extensions
- UPC-E
- EAN-8
- EAN-13
- UPC and EAN 2 or 5 digit expressions
- Plessey
- Postnet
- Standard 2 of 5
- Industrial 2 of 5
- Interleaved 2 of 5
- LOGMARS
- MSI
- Codabar

STANDARD PRINTER FONTS

Bitmap fonts A, B, C, D, E, F, G, H, and GS are expandable up to 10 times, height and width independently. However, fonts E and H (OCR-A and OCR-B) are not considered "in-spec" when expanded.

The smooth scalable font 0 (CG Triumvirate™ Bold Condensed) is expandable on a dot-by-dot basis, height and width independent, while maintaining smooth edges. Maximum character size depends on available memory.

IBM Code Page 850 international character sets are available in the fonts A, B, C, D, E, F, G, and 0 through software control.

Table 1-1. Font Matrices for 8 dot/mm (203 DPI) 105SL Printheads

Font	Matrix			Type*	Character Size					
					Inches			Millimeters		
Height	Width	Inter-character gap	Height	Width	Char./Inch	Height	Width	Char./mm		
A	9	5	1	U-L-D	0.044	0.030	33.9	1.13	0.75	1.33
B	11	7	2	U	0.054	0.044	22.6	1.38	1.13	0.89
C,D	18	10	2	U-L-D	0.089	0.059	16.9	2.25	1.50	0.67
E	28	15	5	OCR-B	0.138	0.098	10.2	3.50	2.50	0.40
F	26	13	3	U-L-D	0.128	0.079	12.7	3.25	2.00	0.50
G	60	40	8	U-L-D	0.295	0.236	4.2	7.50	6.00	0.17
H	21	13	6	OCR-A	0.103	0.094	10.7	2.63	2.38	0.42
GS	24	24	0	SYMBOL	0.118	0.118	8.5	3.00	3.00	0.33
0	variable			U-L-D	variable					

* U = Uppercase, L = Lowercase, D = Descenders

Table 1-2. Font Matrices for 12 dot/mm (300 DPI) 105SL Printheads

Font	Matrix			Type*	Character Size					
					Inches			Millimeters		
	Height	Width	Inter-character gap		Height	Width	Char./Inch	Height	Width	Char./mm
A	9	5	1	U-L-D	0.030	0.020	50.0	0.76	0.51	1.97
B	11	7	2	U	0.037	0.030	33.3	0.93	0.76	1.31
C,D	18	10	2	U-L-D	0.060	0.040	25.0	1.53	1.02	0.98
E	41	20	6	OCR-B	0.137	0.087	11.5	3.47	2.20	0.45
F	26	13	3	U-L-D	0.087	0.053	18.7	2.20	1.36	0.74
G	60	40	8	U-L-D	0.200	0.160	6.2	5.08	4.07	0.25
H	30	19	9	OCR-A	0.100	0.093	10.7	2.54	2.37	0.42
GS	24	24	0	SYMBOL	0.080	0.080	12.5	2.03	2.03	0.49
0	variable			U-L-D	variable					

* U = Uppercase, L = Lowercase, D = Descenders

FONT A -- ABCDwxyz 12345

FONT B -- ABCDWXYZ 12345

FONT D -- ABCDwxyz 12345

FONT E -- (OCR-B) ABCDwxyz 12345

FONT F -- ABCDwxyz 12345

FONT G -- Az4

FONT H -- (OCR-A) UPPER CASE ONLY

FONT 0 -- (Scalable) ABCDwxyz 12345

FONT GS -- ® ©

Figure 1-1. Default Fonts Examples

SPECIFICATIONS

The following tables provide specifications for the printer, media, and ribbon. Using media or ribbon not designed for the printer can cause unsatisfactory results.

Table 1-3. General Specifications

Printer Physical Characteristics	105SL (203 dpi)		105SL (300 dpi)	
Height	15.5"	394 mm	15.5"	394 mm
Width	11.2"	284 mm	11.2"	284 mm
Depth	18.9"	480 mm	18.9"	480 mm
Weight (without options)	55 lbs.	25 kg	55 lbs.	25 kg

Table 1-4. Printing Specifications

Printing Specifications			105SL (203 dpi)	105SL (300 dpi)
Resolution			203 dots/inch(8 dots/mm)	300 dots/inch (12 dots/mm)
Dot size (width x length)			0.0049" x 0.0049" (0.125 x 0.125 mm)	0.0033" x 0.0039" (0.084 mm x 0.100 mm)
First dot location measured from inside media edge			0.10" ±0.035" (2.5 mm ±0.89 mm)	0.10" ±0.035" (2.5 mm ±0.89 mm)
Maximum print width			4.09" (104 mm)	4.09" (104 mm)
Print Length (maximum)	Non-continuous printing	Standard memory	39" (991 mm)	39" (991 mm)
	Continuous printing	Standard memory	106" (2692 mm)	65" (1651 mm)
Bar code modulus ("X") dimension	Ladder (rotated) orientation		4.9 mil to 49 mil	3.9 mil to 39 mil
	Picket fence (non-rotated) orientation		4.9 mil to 49 mil	3.3 mil to 33 mil
Thin film printhead with Element Energy Equalizer® (E ³)			Yes	Yes

Table 1-5. Ribbon Specifications

Ribbon width: To protect the printhead from wear, Zebra recommends using ribbon at least as wide as the media you are using.		Maximum	4.5"	114 mm
		Minimum	0.79"	20 mm
Standard lengths		2:1 media to ribbon roll ratio		984' 300 m
		3:1 media to ribbon roll ratio		1476' 450 m
Roll size		Inner diameter of core		1.0" 25.4 mm
		Outside diameter of full ribbon roll		3.2" 81.3 mm

Table 1-6. Media Specifications

Minimum label length*	Tear-off	0.7" (18 mm)	
	Peel-off	0.5" (13 mm)	
	Cutter	1.5" (38 mm)	
	Rewind	0.25" (6 mm)	
Total media width (label + liner, if any)	Minimum	0.79" (20 mm)	
	Maximum	4.52 mm (115 mm)	
Total thickness (includes liner, if any)	Minimum	0.003" (0.076 mm)	
	Maximum	0.012" (0.305 mm)	
Roll media core inside diameter		3" (76 mm)	
Maximum roll diameter		8.0" (203 mm)	
Inter-label gap	Minimum	0.079" (2 mm)	
	Preferred	0.118" (3 mm)	
	Maximum	0.157" (4 mm)	
Maximum internal fanfold media pack size (label + liner) L x W x H		8.0" x 4.5" x 4.5" (203 mm x 114 mm x 114 mm)	
Ticket/tag sensing notch L x W		0.12" x 0.25" (3 mm) x (6 mm)	
Ticket/tag sensing hole diameter		0.125" (3 mm)	
Effective leading edge registration accuracy*	Vertical	0.050" (\pm 1.3 mm)	
	Horizontal	0.050" (\pm 1.3 mm)	
Additional specifications for black mark sensing	Mark length (measuring parallel to label/tag edge)	Minimum	0.12" (3 mm)
		Maximum	0.43" (11 mm)
	Mark width (measuring to perpendicular label/tag edge)	Minimum	0.43" (11 mm)
		Maximum	Full media width
	Mark location	Marks must be located within 0.040" (1 mm) of the inside media edge.	
	Mark density	>1.0 Optical Density Unit (ODU)	
	Maximum density of the back of the media on which the black mark is printed	0.5 ODU	

* Media registration and minimum label length are affected by media type and width, ribbon type, print speed, and printer mode of operation. Performance improves as these factors are optimized. Zebra recommends always qualifying any application with thorough testing.

Table 1-7. Environmental Operating Ranges

Temperature	Thermal Transfer:	+40°F to +104°F (+5°C to +40°C)
	Direct Thermal:	+40°F to +104°F (+5°C to +40°C)
	Storage	-40°F to +140°F (-40°C to +60°C)
Non-condensing relative humidity	Operating	20% to 85%
	Storage	5% to 85%

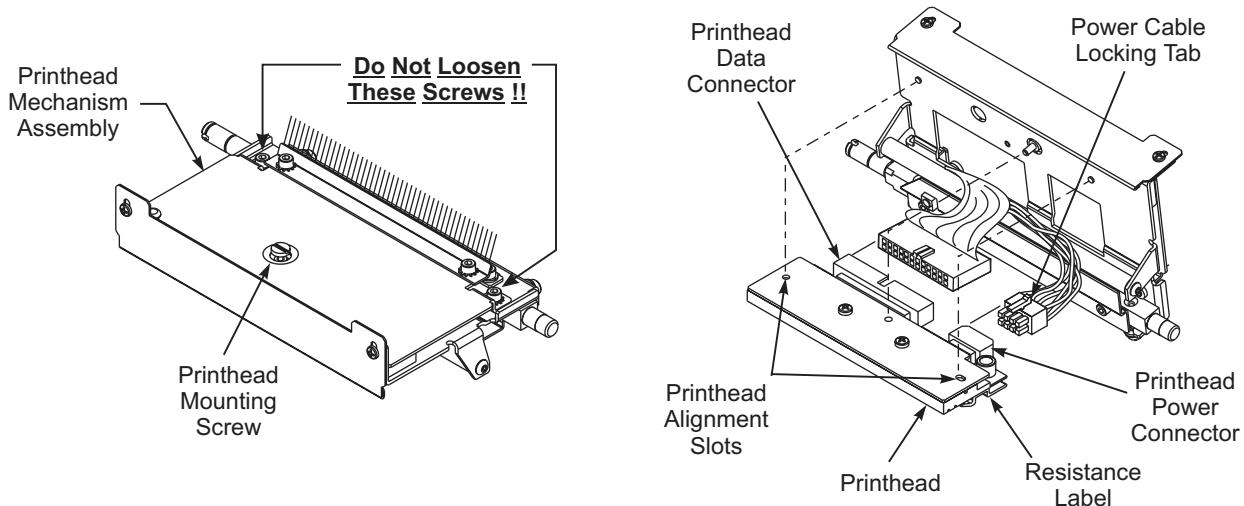
ELECTRICAL REQUIREMENTS

- Universal power supply with power factor correction 90-264VAC, 48-62Hz.
- Power Consumption
Idle = 19 W
Printing = 180 W (printing pause test label at speed A)
- Agency approvals: UL 1950, CISPR 22 (class B), IEC 950, 801-2, -3, and -4 standards, CSA 950, Canadian Doc. (class A), FCC (class A), CE compliance

OVERVIEW OF FUNCTIONS OF MAJOR ASSEMBLIES

Print Mechanism and Printhead

The print mechanism (see Figure 1-2) carries the printhead and has mechanical devices that allow the printhead to be adjusted for optimum print quality. The printhead is an electrical part that causes the printing to be done. The Zebra 105SL printer features a thin film printhead with E³® Element Energy Control.

**Figure 1-2. 105SL Printhead**

Media and Ribbon Sensors

There are several sensors mounted in the 105SL printer that monitor the presence of ribbon and media and signal the processor. The media sensors are shown in Figure 1-3 and Figure 1-4.

Transmissive Media Sensors

The **upper and lower transmissive media sensor pair** monitor the presence of media at the printhead. The bottom sensor is an infrared transmitter and the upper sensor is the receiver.

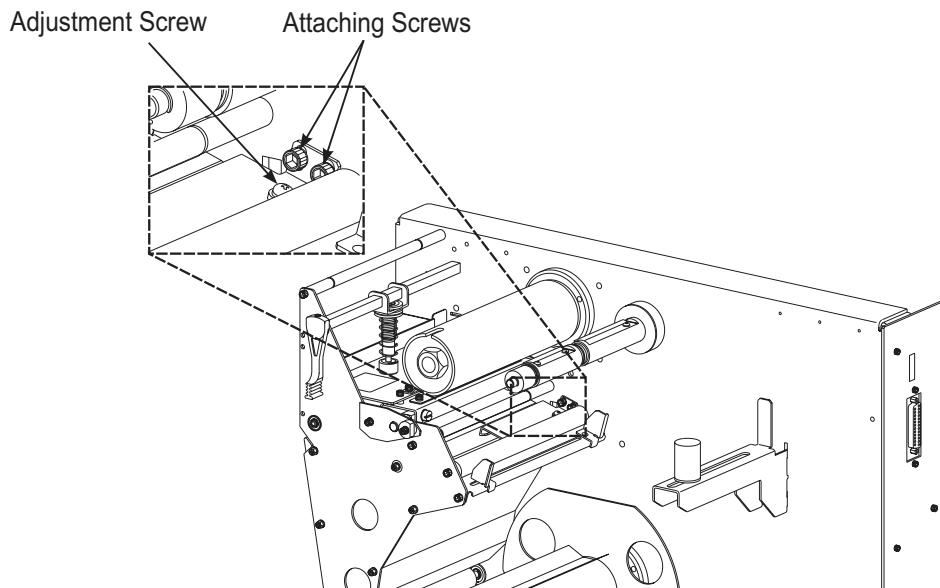


Figure 1-3. Upper Media Sensor

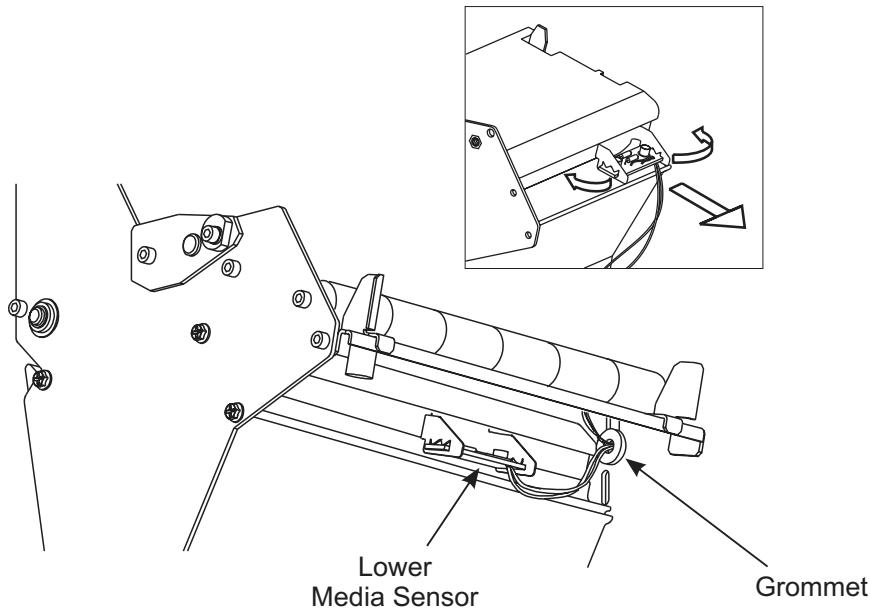


Figure 1-4. Lower Media Sensor and Bracket

When the printer is using **continuous media**, the sensor pair merely confirm that there is media in the machine. If the media broke or was exhausted, the sensor would send a message to the processor and the processor would pause the machine and send a message to the LCD.

When the printer is using **non continuous media**, the sensors are used to signal the processor that the interval has been detected and the printing stops. The printer stops based

on the information from the transmissive media sensor pair but starts based on information from another pair of media sensors, the **take label or label available sensor pair**.

Take Label Sensors

See Figure 1-5. This pair of sensors detects the absence of a label printed on non-continuous media in the peel off mode. When the label is removed, the sensor pair signals the processor and the processor starts printing the next label.

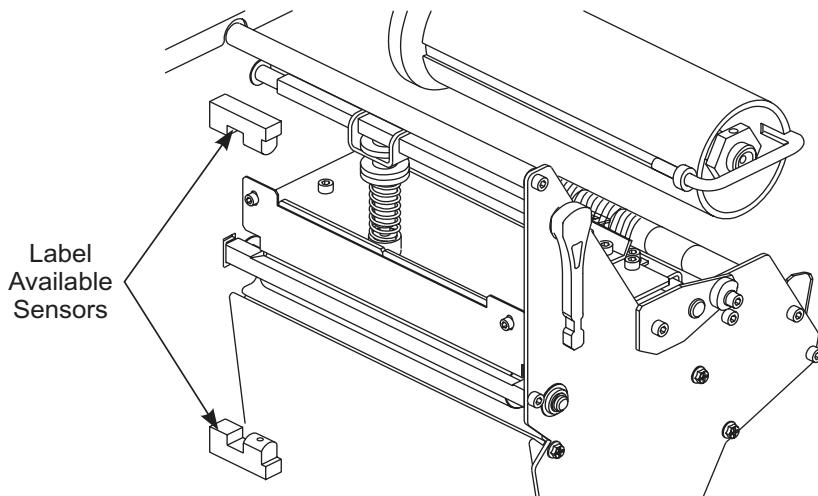


Figure 1-5. Take Label Sensor Pair

Ribbon Sensor

See Figure 1-6. This sensor detects the absence of ribbon and sends a "ribbon out" message to the processor. The processor pauses the printing until more ribbon is loaded.

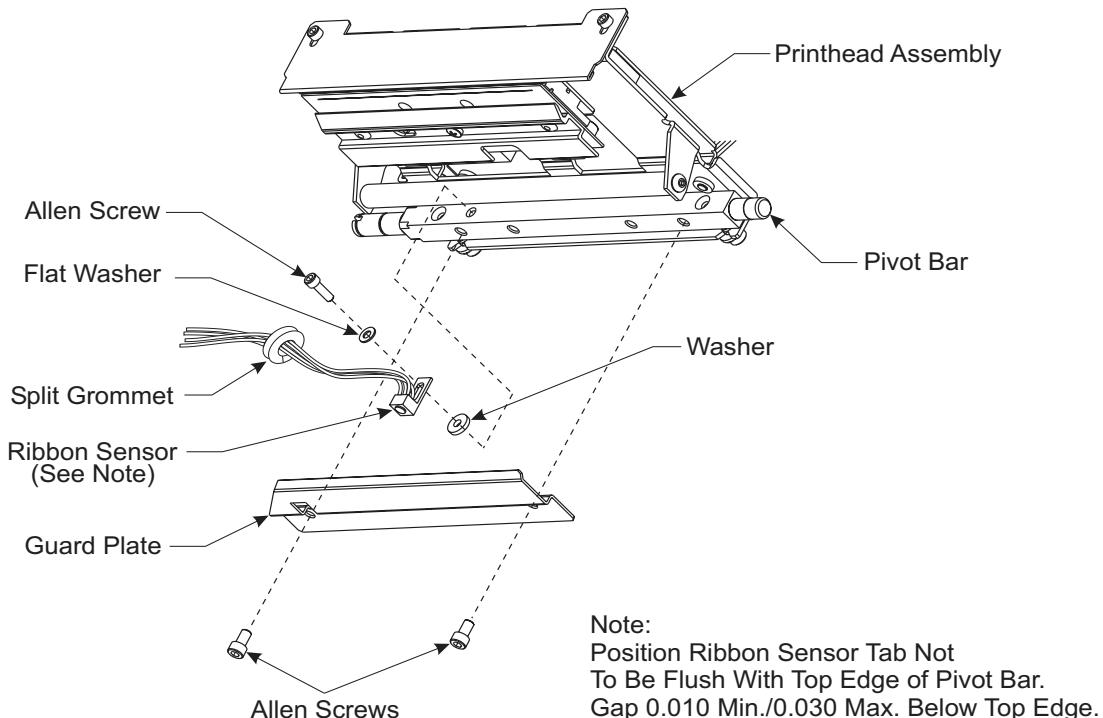


Figure 1-6. Ribbon Sensor, Guard Plate and Printhead

Spindles

The 105SL printer uses 4 different spindles. Refer to Section 5 for exploded view drawings of these spindles.

RIBBON SUPPLY SPINDLE. Supports and dispenses ribbon to and through the printhead. Maintains a little back pressure on the ribbon to keep it from pulling off the spindle too fast.

RIBBON TAKE-UP SPINDLE. Helps pull the ribbon through the printer. Maintains the correct ribbon tension for highest quality printing. Prevents ribbon from unwinding.

MEDIA REWIND SPINDLE. Winds up printed media and liner (used in rewind mode only).

LINER REWIND SPINDLE. Winds up used liner (used in peel-off mode only).

SECTION 2

OPERATION OVERVIEW

OPERATOR CONTROLS

This section discusses the functions of the various controls and indicators on the Zebra 105SL. Become familiar with each of the controls before servicing the printer.

Front Panel Display

The Front Panel Display, as shown in Figure 2-1, communicates operational and programming modes and parameters.

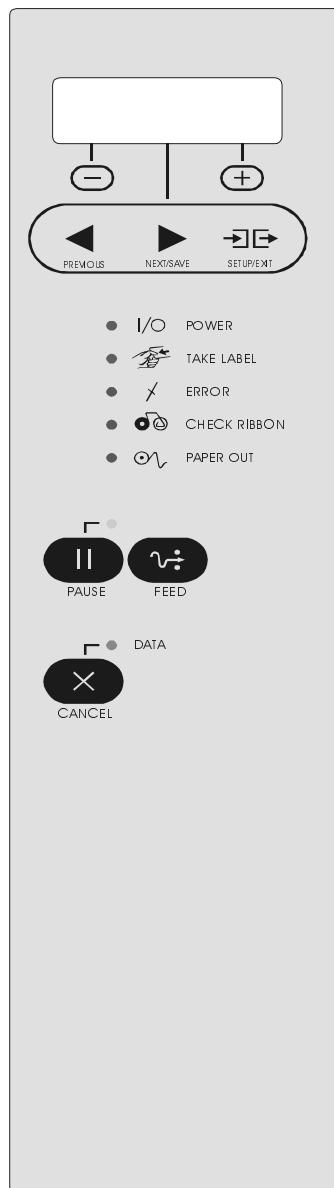
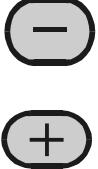


Figure 2-1. Front Panel

Front Panel Keys

For an explanation of the front panel controls, refer to the following table and to Figure 2-1.

Table 2-1. Front Panel Keys

Key	Function
 PAUSE	<p>Starts and stops the printing process.</p> <ul style="list-style-type: none"> If the printer is not printing: no printing can occur. If the printer is printing: printing stops once the current label is complete. <p>Press to remove error messages from the display.</p> <p>NOTE: Pause mode can also be activated via ZPL II (~PP, ^PP).</p>
 FEED	<p>Forces the printer to feed one blank label each time the key is pressed.</p> <ul style="list-style-type: none"> Printer not printing: one blank label immediately feeds. Printing: one blank label feeds after the current batch of labels is complete.
 CANCEL	<p>When in the pause mode, this key cancels print jobs.</p> <ul style="list-style-type: none"> Print job in queue: press once for each print job to be deleted. Press and hold for several seconds to cancel all print jobs in the printer's memory. The DATA light turns off.
NOTE: The keys below are used only when configuring the printer. Specific uses of these keys are explained in the Configuration section of the User's Guide, PN 32051L.	
 PREVIOUS	<ul style="list-style-type: none"> Scrolls back to the previous menu item. Press and hold to quickly go backward through parameter sets.
 NEXT/SAVE	<ul style="list-style-type: none"> Scrolls forward to the next menu item. Saves any changes you've made in the configuration and calibration sequence. Press and hold to quickly advance through parameter sets.
 SETUP/EXIT	Enters and exits the configuration mode.
 -  +	<p>These keys change the parameter values. They are used in different ways depending on the parameter displayed. Common uses are: to increase/decrease a value, answer "yes" or "no," indicate "on" or "off," scroll through several choices, input the password, or set up the printer for a firmware download.</p>

Front Panel Indicators

For an explanation of the front panel indicators, refer to the following table and to Figure 2-1.

NOTE: *If two operating conditions occur simultaneously (for example, one that causes a light to be on constantly and one that causes the same light to flash), the light flashes.*

Table 2-2. Front Panel Lights

Light	Status	Indication
Power—green 	Off	The printer is off or power is not applied.
	On	The printer is on.
Take Label—green 	Off	Normal operation.
	Flashing	NOTE: Peel-off mode only. The label is available. Printing is paused until the label is removed.
Error—yellow 	Off	Normal operation — no printer errors.
	Flashing	A printer error exists. Check the display screen for more information.
Check Ribbon—yellow 	Off	Normal operation — ribbon, if used, is properly loaded.
	On	The front panel displays a warning message. If the printer is in direct thermal mode: Ribbon is loaded, but the printer continues printing. If the printer is in thermal transfer mode: No ribbon is loaded. The printer is paused and the PAUSE light is on.
Paper Out—yellow 	Off	Normal operation — media is properly loaded.
	On	No media is under the media sensor. Printing is paused, the display shows an error message, and the PAUSE light is on.
PAUSE with yellow light 	Off	Normal operation.
	On	The printer has stopped all printing operations. Either the PAUSE key was pressed, a pause command was included in the label format, or a printer error was detected. Refer to the display screen for more information.
DATA 	Off	Normal operation.
	On	Data processing or printing is taking place. When in the pause mode, this key cancels print jobs. <ul style="list-style-type: none">• Print job in queue: press once for each print job to be deleted. Press and hold for several seconds to cancel all print jobs in the printer's memory. The green DATA light turns off.
	Flashing	The printer is receiving data from or sending status information to the host computer. Flashing slows when the printer cannot accept more data, but returns to normal once data is again being received.

POWER CORD

Electrical Requirements

- Universal power supply with power factor correction 90–264 VAC, 48–62 Hz.
- Power Consumption
Idle = 19 W
Printing = 180 W (printing pause test label at speed A)
- Agency approvals: UL 1950, CISPR 22 (class B), IEC 950, 801-2, -3, and -4 standards, CSA 950, Canadian Doc. (class A), FCC (class A), CE compliance

Cable Requirements

The AC power cord has a three-prong female connector on one end. This connector must be plugged into the mating connector at the rear of the printer.

120 VAC Applications

A standard US-style, three-prong grounded male plug is attached to the other end of the AC power cord. This connector must be plugged into a nearby electrical outlet.

230/240 VAC Applications

An AC power cord may or may not be included with the printer. For those locations that cannot use either of the three power cords listed below, a proper grounded AC power cord must be obtained and installed by the user. See Figure 2-2. The cable must then be plugged into a nearby electrical outlet.

Table 2-3. AC Power Cords

Part Number	AC Power Cable Description
44693	120 VAC Detachable Power Cord w/NEMA 5-15 plug for US
44629	230 VAC Detachable Power Cord w/CEE7-7 "SCHUKO" plug for Europe
44637	230 VAC Detachable power Cord w/BS 1363 plug for UK
46639	240 VAC Detachable power Cord w/SAA 3112-1993 plug for Australia

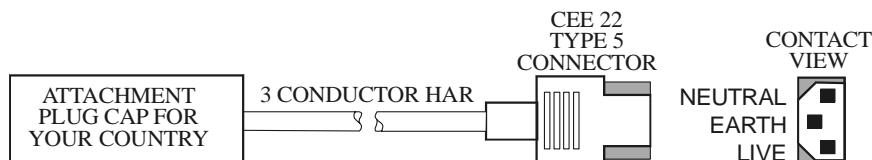


Figure 2-2. AC Power Cord

INTERFACE CONNECTIONS

NOTE: *Depending on the Configuration Number on the printer identification plate, the 105SL is equipped either with a DB-25 or a DB-9 serial connector. If the printer has a DB-9 connector, a 9-pin to 25-pin adapter and an RS-422/RS-485 adapter are available.*

The printer is equipped with a parallel interface connector and a serial interface connector, as shown in Figure 2-3. The interface cable is not supplied with the printer.

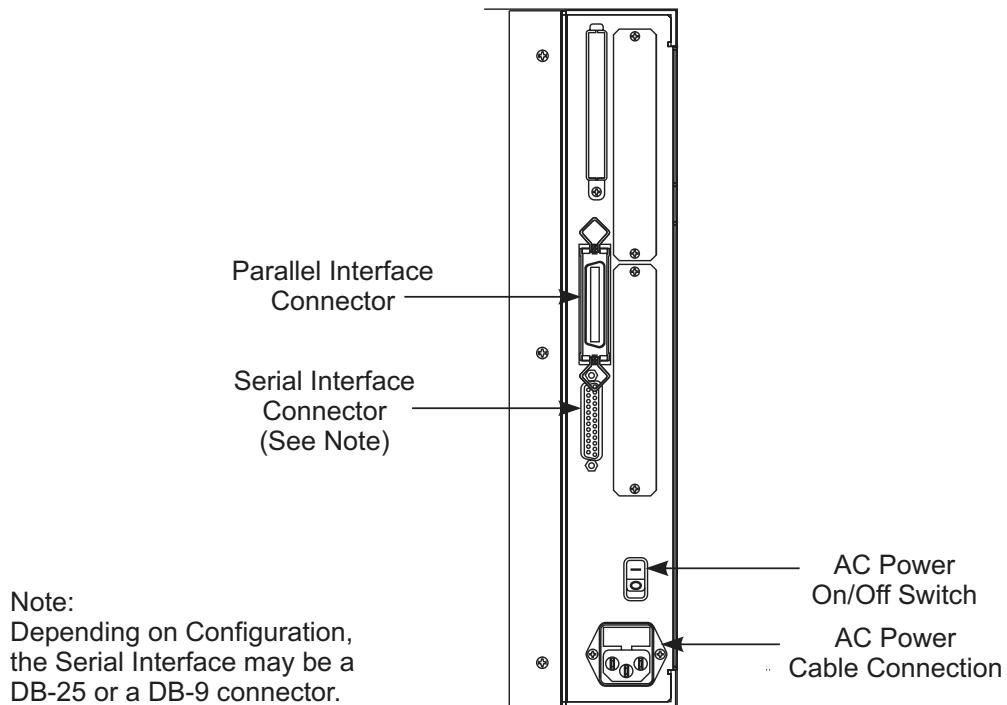
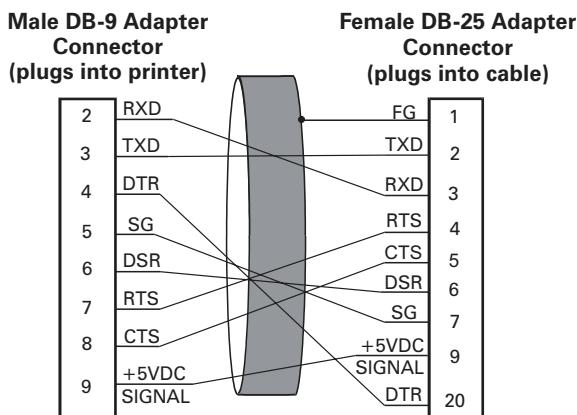


Figure 2-3. Rear Panel Showing Interface Connectors

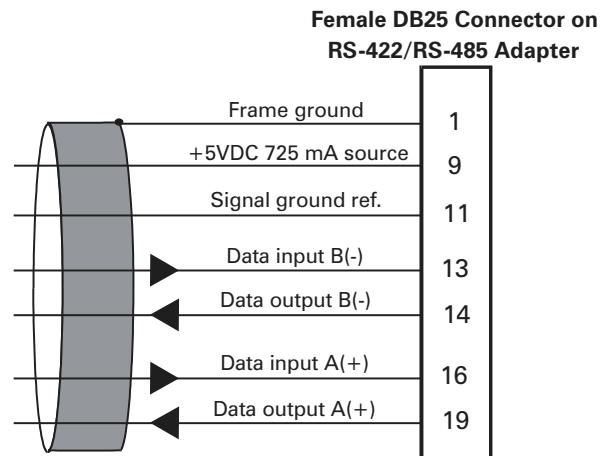
Serial Data Communication Interface Overview

The Zebra 105SL has a single data terminal equipment (DTE) port. Depending on configuration, a 25-pin or a 9-pin serial interface connector is mounted at the rear of the printer. The 25-pin connector supports RS-232, RS-422 and RS-485 serial data communications. The 9-pin connector supports RS-232 and requires an adapter (Zebra part # 33130) to support RS-422 and RS-485 serial data communications. In order to connect the DB-9 interface to a DB-25 connector, an adapter (Zebra part # 33138) is required. A generic adapter may be used, but the 5 VDC signal source would not be passed through. Figure 2-4 illustrates the DB-9 to DB-25 adapter and the cable wiring for interconnecting to the RS-422 and RS-485 adapter.

Baud rate, parity, data length, stop bits, and XON/XOFF or DTR control protocols are front panel selectable. The connector provides the data and control necessary to communicate through all three signaling methods. The method used is specific to the application of the printer. Refer to Figure 2-5 for serial data connection using a null modem cable.

DB-9 to DB-25 Adapter

NOTE: Pin 1 of DB9 connector is unused and unterminated.

RS-422/RS-485 Adapter

NOTE: Pins 2-8, 10, 12, 15, 17-18, 20-25 are unused and unterminated.

Figure 2-4. Supplied Serial Interface Adapters

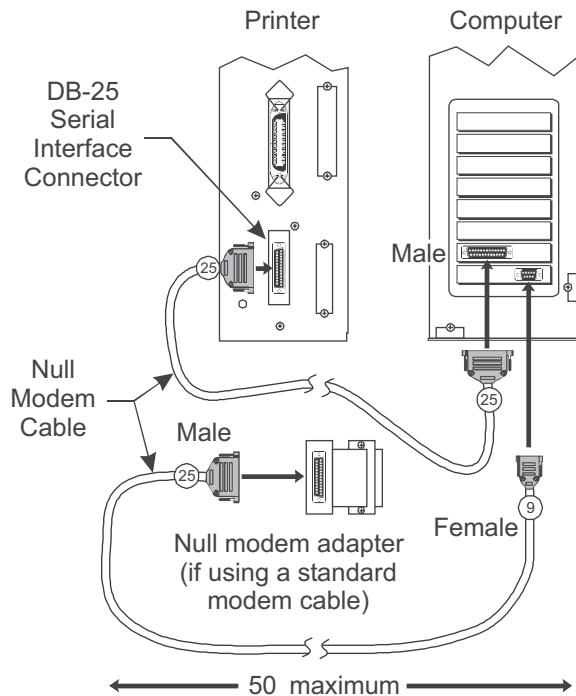
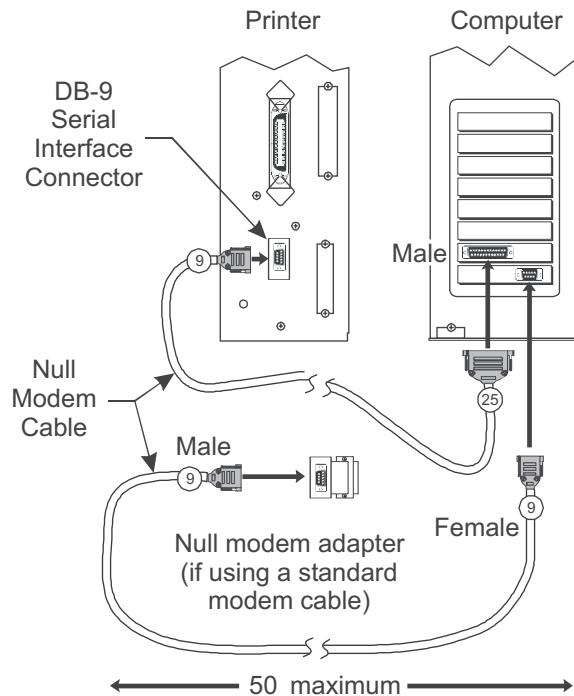
Printers with a DB-25 Serial Connector**Printers with a DB-9 Serial Connector**

Figure 2-5. Serial Data Connection

For all RS-232 data and control input and output signals, the Zebra 105SL follows both the Electronic Industries Association's (EIA) RS-232 and the Consultative Committee for International Telegraph and Telephone (CCITT) V.24 specifications.

Data Cable Requirements

Data cables must be fully shielded and fitted with metal or metallized connector shells. Shielded cables and connectors are required to prevent radiation and reception of electrical noise.

- Keep data cables as short as possible.
- Do not bundle the data cables tightly with the power cords.
- Do not tie the data cables to power wire conduits.

NOTE: *Zebra printers comply with FCC "Rules and Regulations", part 15, Subpart J, for Class A equipment, using fully shielded 6 foot long data cables. Use of longer cables or unshielded cables may increase radiated emissions above the Class A limits. RS-422 and RS-485 applications should use twisted shielded pairs as recommended in the Appendix of the TIA/ETA-485 Specification.*

Communication Buffer

The 105SL printer has a communication buffer that stores the incoming data until that information can be acted upon (imaged). Communication handshaking (DTR/DSR control signals or XON/XOFF control codes) is used to control when the host can send data to the printer.

As data is received by the 105SL printer, the processor monitors the number of characters in the buffer. If the buffer is filled beyond its limit, the printer turns DTR to the OFF condition (negative voltage) or transmits an XOFF (DC-3) control character to the host. When the buffer empties below this limit, the 105SL turns DTR to the ON condition (positive voltage) or transmits an XON (DC-1) control character to the host.

Standard Serial Communication Connector

The DTE port is a DB-25S or a DB-9S connector located at the rear of the printer. It provides connection to a host via RS-232, RS-422 or RS-485 signaling. Refer to Figure 2-6 for the DB-25 serial interface or to Figure 2-7 for the DB-9 serial interface wiring diagram.

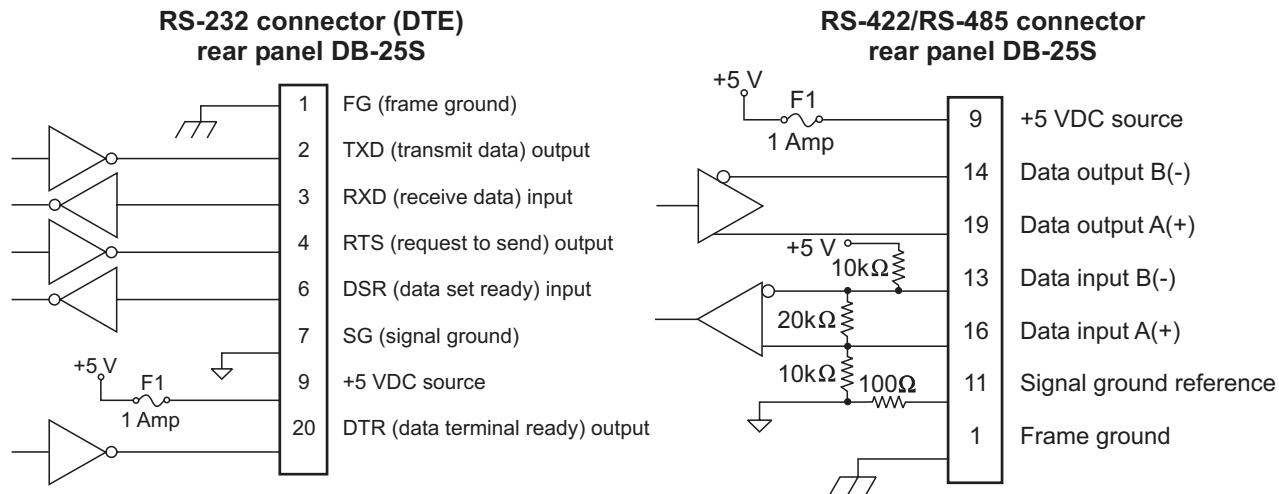


Figure 2-6. Serial Interface (Printers with DB-25 Connector)

The pin outs and signal descriptions for the DB-25 DTE port are as follows:

- Pin 1—FG (Frame ground) for cable shield.
- Pin 2—TXD (RS-232 Transmit Data): Output from printer
- Pin 3—RXD (RS-232 Receive Data): Input to printer
- Pin 4—RTS (RS-232 Request to Send): Output from printer
- Pin 6—DSR (RS-232 Data Set Ready): Input to printer
- Pin 7—SG (Signal ground) for RS-232
- Pin 9—+5VDC source (1 Amp maximum)
- Pin 11—SGR (Signal ground reference) RS-422/RS-485
- Pin 13—Data input B(−) RS-422/RS-485
- Pin 14—Data output B(−) RS-422/RS-485
- Pin 16—Data input A(+) RS-422/RS-485
- Pin 19—Data output A(+) RS-422/RS-485
- Pin 20—DTR (RS-232 Data Terminal Ready): Output from printer

NOTE: Pins 5, 8, 10, 12, 15, 17-18 and 21-25 are not used and are not terminated.

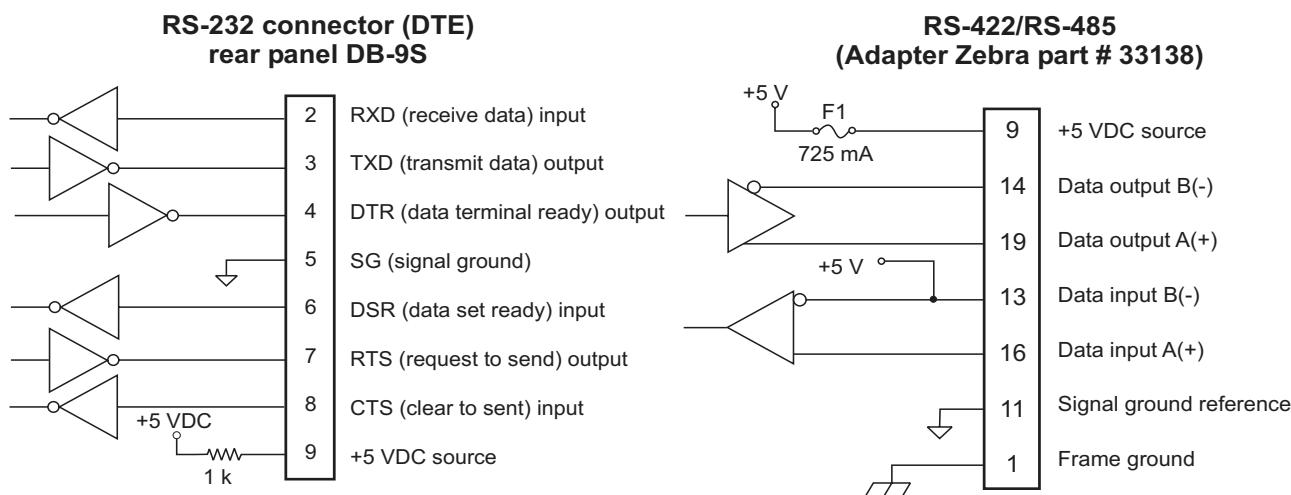


Figure 2-7. Serial Interface (Printers with DB-9 Connector)

The pin outs and signal descriptions for the DB-9 DTE port are as follows:

- Pin 1—Not used and not terminated
- Pin 2—RXD (RS-232 Receive Data): Input to printer
- Pin 3—TXD (RS-232 Transmit Data): Output from printer
- Pin 4—DTR (RS-232 Data Terminal Ready): Output from printer
- Pin 5—SG (Signal Ground)
- Pin 6—DSR (RS-232 Data Set Ready): Input to printer
- Pin 7—RTS (RS-232 Request To Send): Output from printer
- Pin 8—CTS (RS-232 Clear To Send): Input to printer
- Pin 9—+5 VDC signal

NOTE: *Pin 9 is also available as a +5 VDC power source at 750 mA. To enable this capability, a jumper needs to be installed between pins 2 and 3 at JP1 on the Main Logic Board.*

The pin outs and signal descriptions for the RS-422/RS-485 adapter are as follows:

- Pin 1—FG (Frame ground) for cable shield.
- Pin 9—+5VDC source (1 Amp maximum)
- Pin 11—SGR (Signal ground reference) RS-422/RS-485
- Pin 13—Data input B(−) RS-422/RS-485
- Pin 14—Data output B(−) RS-422/RS-485
- Pin 16—Data input A(+) RS-422/RS-485
- Pin 19—Data output A(+) RS-422/RS-485

Pins 2–8, 10, 12, 15, 17–18 and 20–25 are not used and are not terminated.

Serial Communication Signal Levels

Refer to Figure 2-8. RS-232 data signals are defined as either “Mark” or “Space”, while control signals are ON (Active-Positive Voltage) or OFF (Inactive-Negative Voltage). Although the permitted voltage levels can range from ± 3 VDC to ± 25 VDC, the levels for the 105SL printer are as follows:

RS-232 Transmit and Receive Data

Mark or OFF = −7 to −10 VDC
Space or ON = +7 to +10 VDC

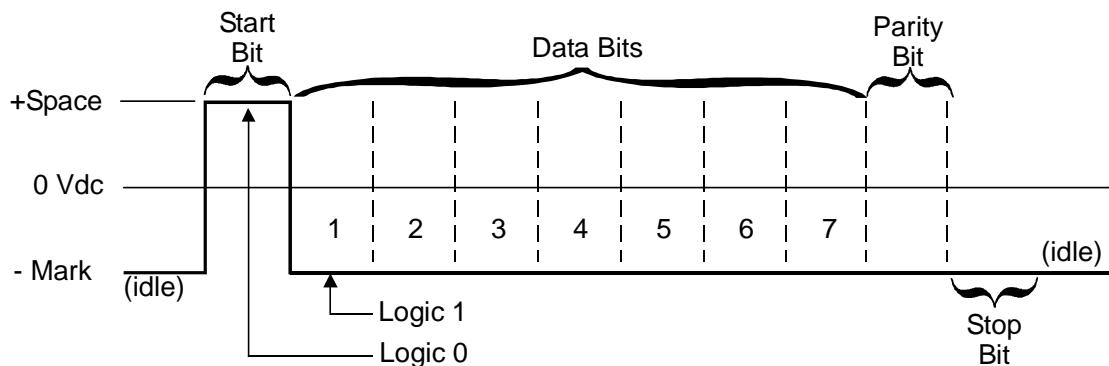


Figure 2-8. RS-232 Signaling

Refer to Figure 2-9. RS-422 and RS-485 data signals are also either Mark or Space. The voltage levels are +5 VDC and 0 VDC when monitored from a specified reference point. The levels for the 105SL printer when referenced to signal ground are:

RS-422 and RS-485 Transmit and Receive Data

Mark Output/Input A = +5V and Output/Input B = 0V
Space Output/Input A = 0V and Output/Input B = +5V

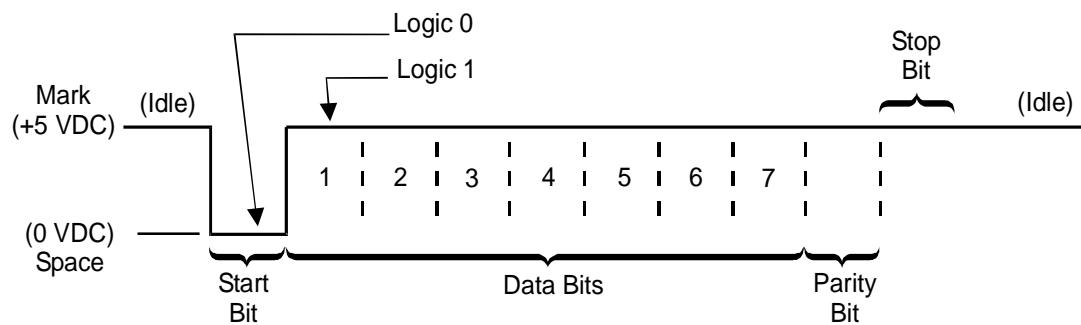


Figure 2-9. RS-422/RS-485 Signaling

Communication Code

The 105SL printer sends and receives ASCII (American Standard Code for Information Interchange) characters in one of two formats, Serial Data or Parallel Data.

NOTE: *When using the serial data format, the baud rate, number of data and stop bits per character, and parity are selectable. Parity only applies to data transmitted by the 105SL printer. For received data, the parity bit is ignored.*

Parallel Data Communications Interface Overview

A standard 36-pin parallel connector is available at the rear of the printer for connection to the data source. Under normal circumstances, data sent from the printer to the host in response to a "Printer Status Request" command is sent through the RS-232 serial port. However, if the host has a properly configured IEEE-1284 parallel port that is recognized by the printer, status information is returned through the parallel port. Port selection for status information is determined each time the printer is turned on. See Figure 2-10.

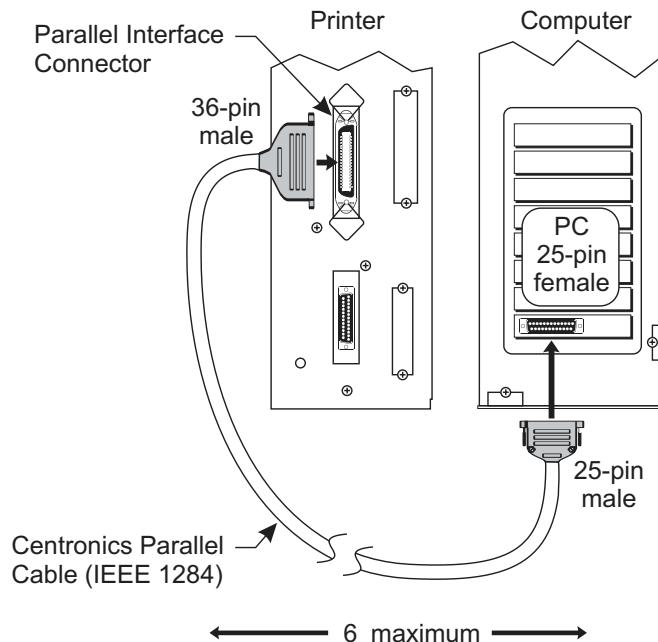


Figure 2-10. Parallel Data Connection

Parallel Port Connector

The following table shows the pin configuration and function of a standard PC-to-Printer Centronics Parallel cable.

Table 2-4. Centronics® Parallel Cable

36-pin Connector	Description
1	nStrobe/HostClk
2–9	Data Bits 1–8
10	nACK/PtrClk
11	Busy/PtrBusy
12	PError/ACKDataReq
13	Select/Xflag
14	nAutoFd/HostBusy
15	Not Used
16 & 17	Ground
18	+5V @ 1A
19–30	Ground
31	ninit
32	nFault/NDataAvail
33 & 34	Not Used
35	+5V through a 4.7 K Ohm Resistor
36	NSelectIn/1284 active

NOTE: *Optional Ethernet Networking Communications via ZebraNet are available via PrintServer II. Refer to the ZebraNet Networking: PrintServer II Operator's Guide, Zebra part # 45537L when using this communications option.*

Optional Interface Boards

For information about the IBM plug-compatible Twinax Interface, the IBM plug-compatible Coax Interface and the RS-485 network interface, refer to the instructions that accompany the interface option kits in Section 6. See Figure 2-11 and Figure 2-12.

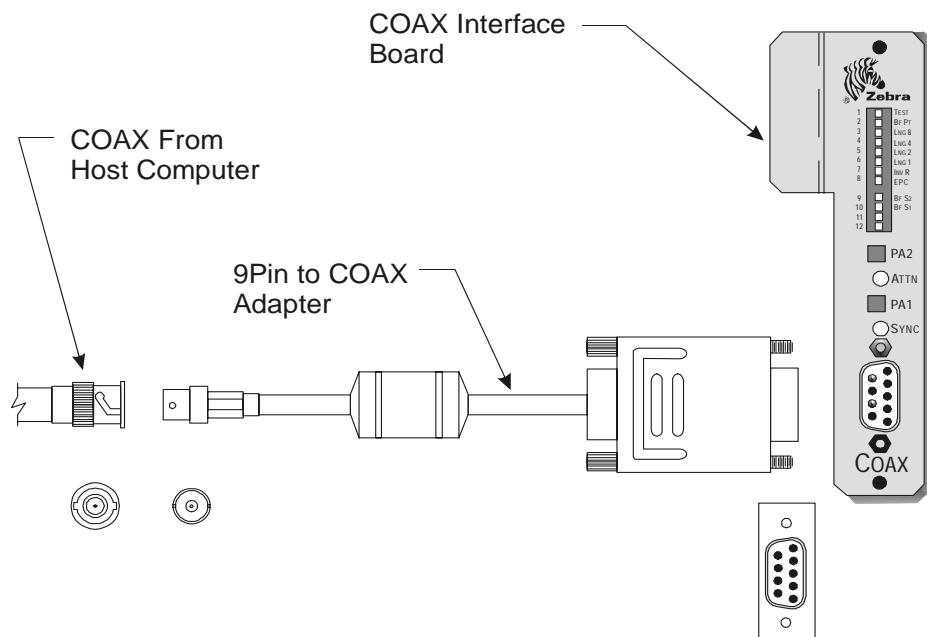


Figure 2-11. Coax Adapter Cable and Interface Hook-up

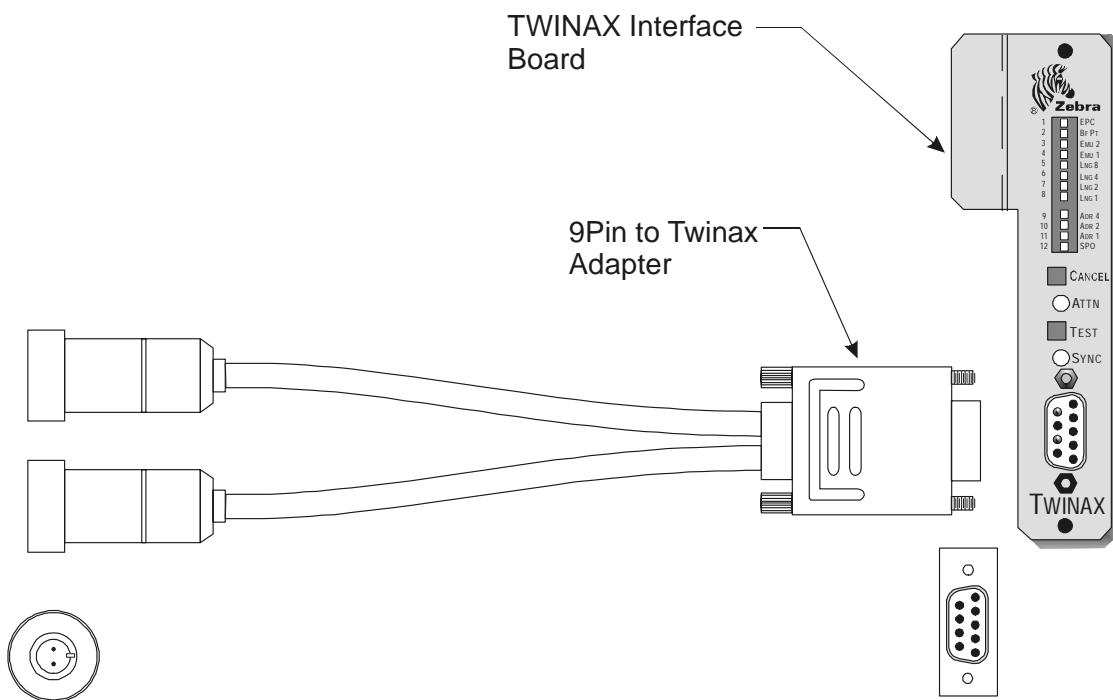


Figure 2-12. Twinax Adapter Cable and Interface Hook-up

LOADING MEDIA

Figure 2-13 provides a view of the printer with the media cover open. Become familiar with these components before loading the media or ribbon.

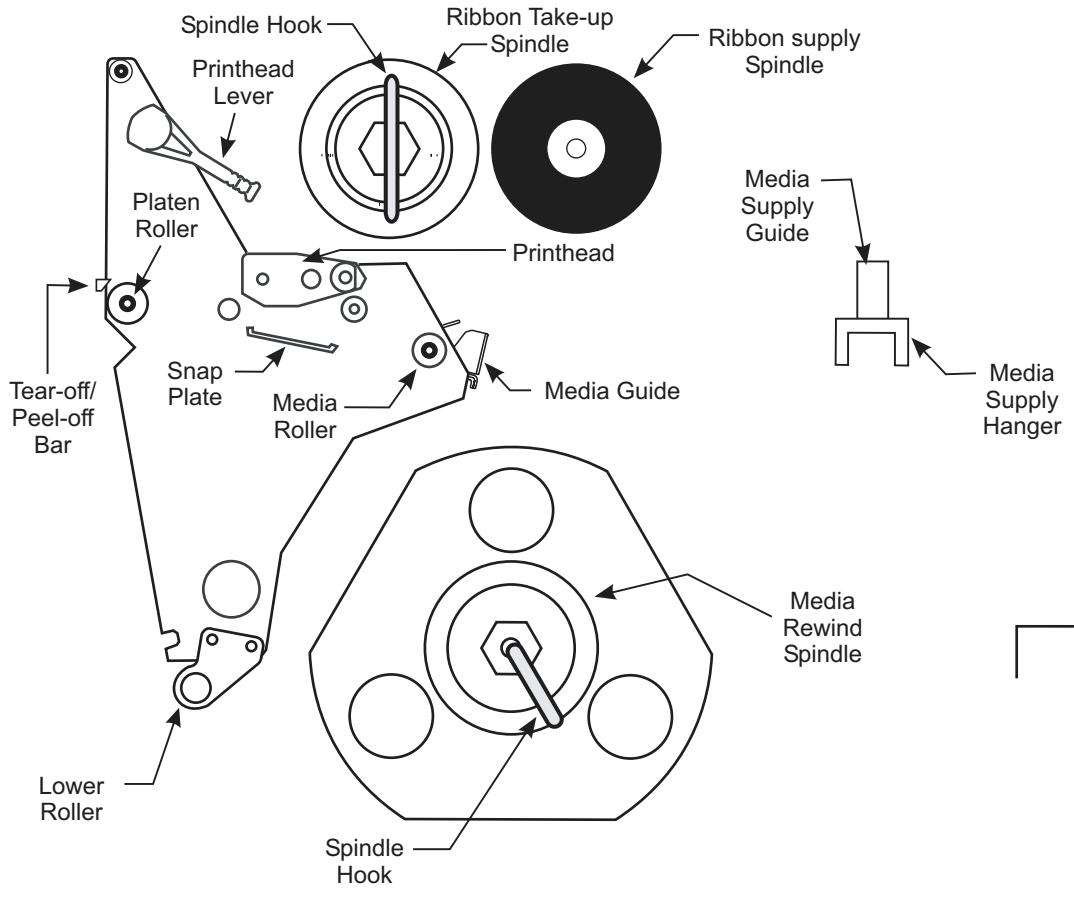


Figure 2-13. Printer Media Side Parts

NOTE: *A calibration must be performed when media and ribbon (if used) are first installed in the printer, when a different type of media or ribbon is being used, or if printer is set to "feed" or "no motion" at power up or head close.*

Tear-Off Mode

Refer to Figure 2-14.

1. Open the printhead.
2. Slide the media guide and media supply guide as far from the printer frame as possible.
3. Load media as shown.
4. Slide in the media guide and media supply guide so they just touch, but don't restrict, the edge of the roll.
5. Close the printhead.

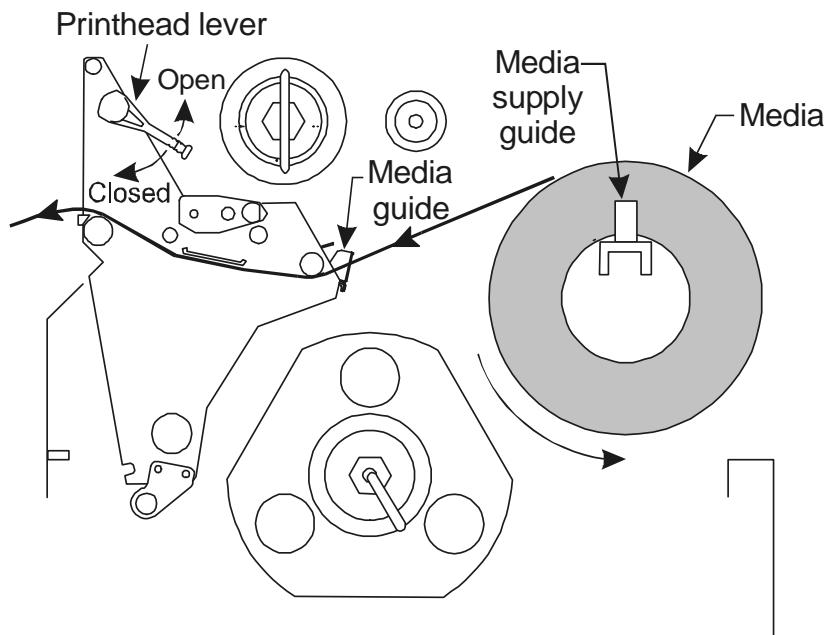


Figure 2-14. Roll Media Loading Tear-Off Mode

Peel Mode

NOTE: *Liner rewind or media rewind option required.*

Refer to Figure 2-15.

1. Remove the rewind plate from the front of the printer, if installed. Store it on the two mounting screws on the inside of the front panel.
2. Open the printhead.
3. Slide the media guide and media supply guide as far from the printer frame as possible.
4. Load media as shown.
5. When loading media, allow approximately 36" (915 mm) of media to extend past the tear-off/peel-off bar. Remove all labels from this portion to create a leader.
6. Remove the hook from the rewind spindle. If you are using a core, for rewind option only, slide it onto the rewind spindle until it is flush against the guide plate.
7. Wind the label backing around either the 3" (76 mm) core or the rewind spindle and reinstall the hook.
8. Slide in the media guide and media supply guide so they just touch, but do not restrict, the edge of the roll.

Before closing the printhead, make sure:

- The media is positioned against the inside guides.
 - The media is taut and parallel with the wound backing and the pathway when wound onto the rewind spindle/core.
9. Close the printhead.

To discard the label backing from the rewind spindle, refer to “Removing the Label Backing Material” on page 2-19.

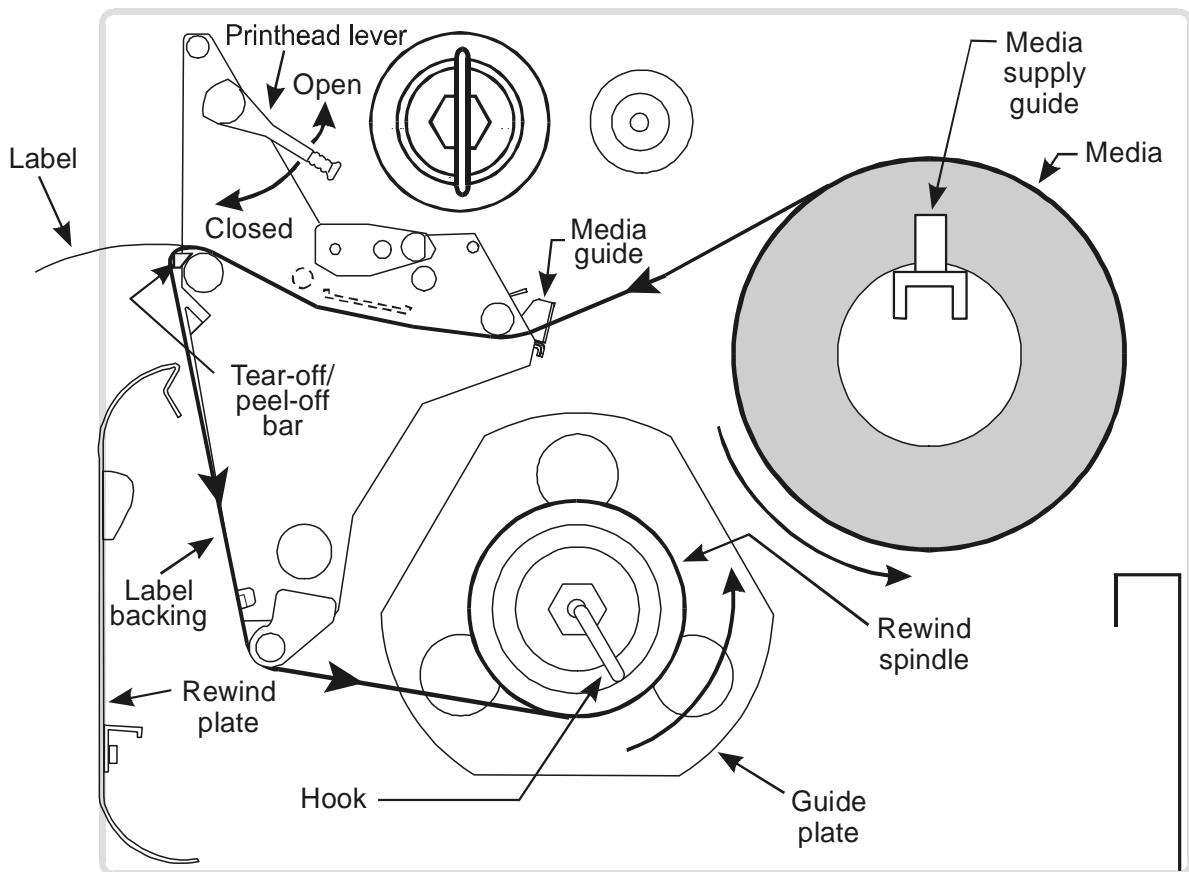


Figure 2-15. Peel and Liner Rewind Loading

Media Rewind Mode — for Printers Without the Cutter Option

NOTE: *Media rewind option required.*

Refer to Figure 2-16.

1. Remove the rewind plate from its storage location in front of the print mechanism inside the media compartment.
2. Invert the rewind plate so that the lip on the attached hook plate points down.
3. Insert the hook plate lip approximately 1/2" (15 mm) into the lower opening in the side plate.
4. Align the upper end of the rewind plate with the corresponding opening in the side plate. Slide in the rewind plate so that it stops against the printer's main frame.
5. Open the printhead.
6. Slide the media guide and media supply guide as far from the printer frame as possible.
7. Load media as shown.
8. When loading media, allow approximately 36" (915 mm) of media to extend past the printhead. Remove all labels from this portion to create a leader.

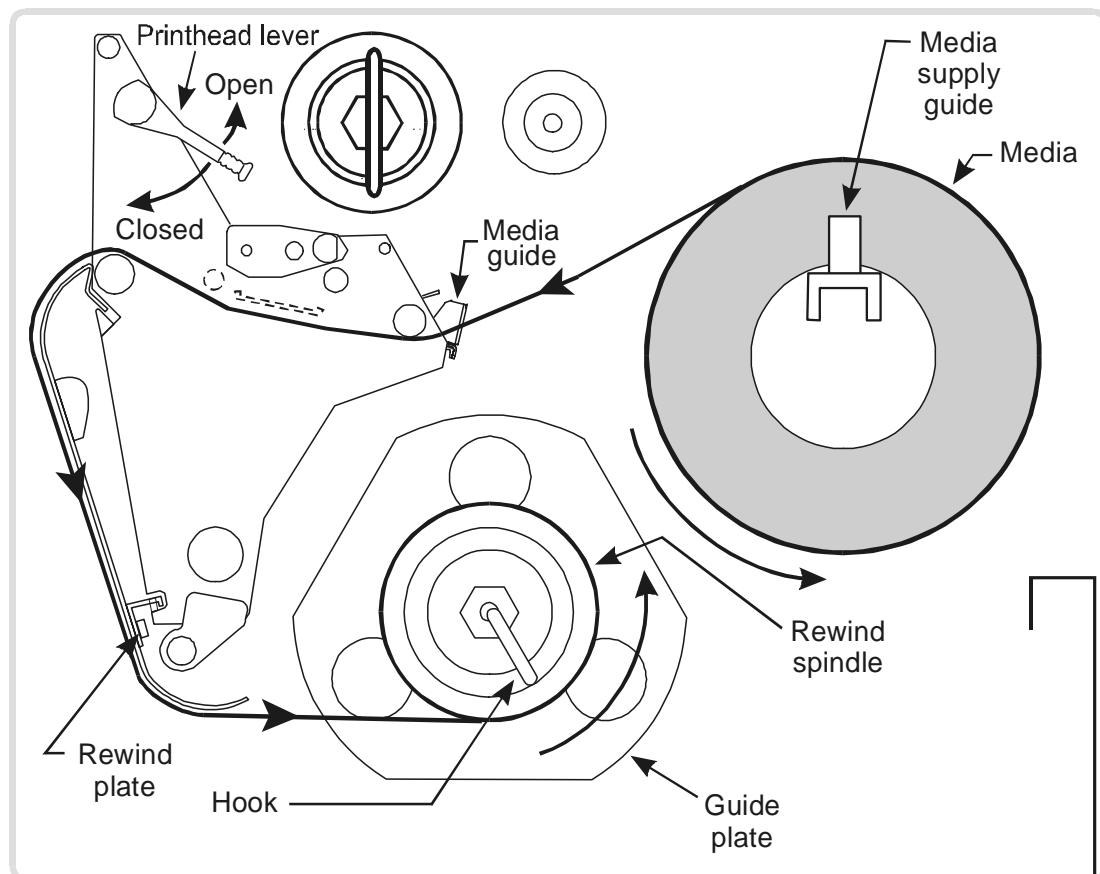


Figure 2-16. Media Rewind w/o Cutter Option

9. Remove the hook from the rewind spindle. If you are using a core, slide it onto the rewind spindle until it is flush against the guide plate.
10. Wind the labels around either the 3" (76 mm) core or the rewind spindle and reinstall the hook.
11. Slide in the media guide and media supply guide so they just touch, but don't restrict, the edge of the roll.

Before closing the printhead, make sure:

- The media is positioned against the inside guides.
 - The media is taut and parallel with the wound media and the pathway when wound onto the rewind spindle/core.
12. Close the printhead.

Cutter Mode

NOTE: *Factory installed only cutter option required.*

Refer to Figure 2-17.

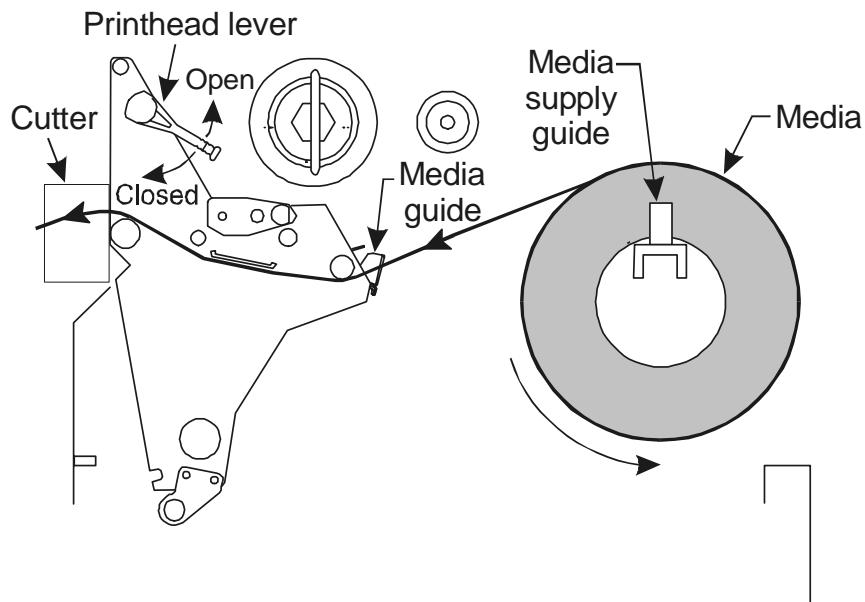


Figure 2-17. Cutter Mode Loading

1. Open the printhead.
2. Slide the media guide and media supply guide as far from the printer frame as possible.
3. Load media as shown.
4. Slide in the media guide and media supply guide so they just touch, but don't restrict, the edge of the roll.
5. Close the printhead.
6. The printer automatically cuts once during the Power On Self Test.

Fanfold Media Loading

Refer to Figure 2-18.

Fanfold media feeds through either the bottom or through a rear access slot from outside the printer.

1. Open the printhead.
2. Slide the media guide as far from the printer frame as possible.
3. Load media as shown. If in cutter mode, route media through the cutter.
4. Slide in the media guide so it just touches, but doesn't restrict, the edge of the roll.
5. Close the printhead.

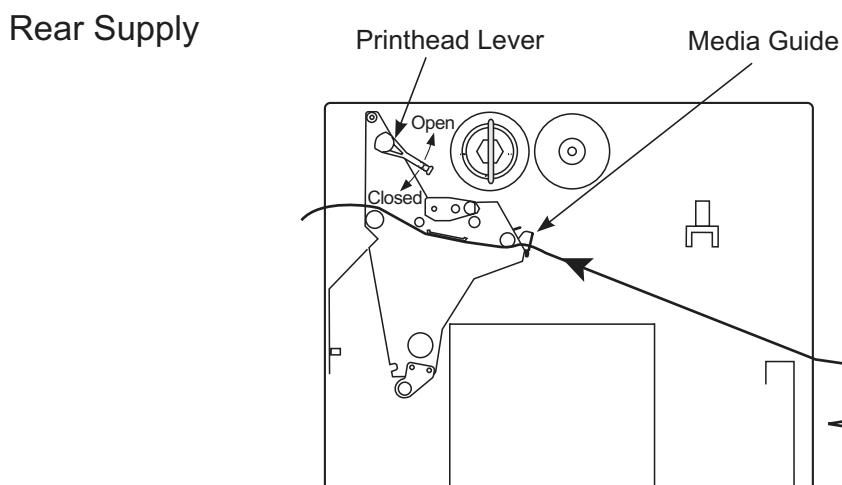
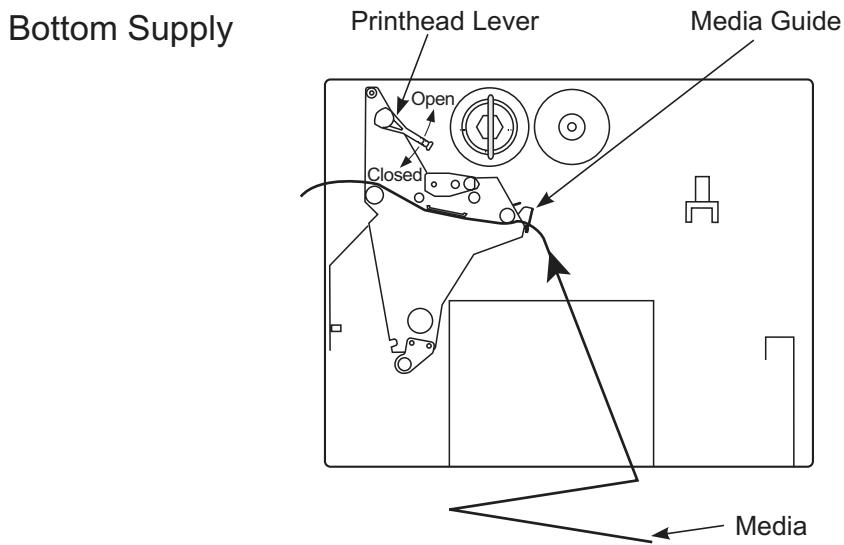


Figure 2-18. Fanfold Media Loading

Removing the Label Backing Material

Since the rewind spindle holds the backing from a standard-size media roll, we recommend that you perform this procedure whenever you change the media.

Use the following procedure to remove the backing material from the rewind spindle.

NOTE: *The printer does not need to be turned off for this procedure.*

1. Unwind approximately 36" (915 mm) of backing from the rewind spindle. Cut it off at the spindle.
2. Pull out the hook. Slide the backing material off of the rewind spindle and discard.
3. Wind the media around the rewind spindle once or twice and reinstall the hook. Continue winding to remove any slack in the media.

Ribbon Loading

NOTE: *Do NOT load ribbon if the printer is to be used in the direct thermal mode.*

Load ribbon before performing calibration for thermal transfer print mode. A calibration must be performed when media and ribbon (if used) are first installed in the printer, or when a different type of media or ribbon is being used.

Use the following procedure to load the ribbon.

NOTE: *Always use ribbon that is at least as wide as the media. The smooth backing of the ribbon protects the printhead from wear and premature failure due to excessive abrasion. For the direct thermal print mode, ribbon is not used and should not be loaded in the printer.*

1. Align the segments of the ribbon supply spindle as shown in Figure 2-19.

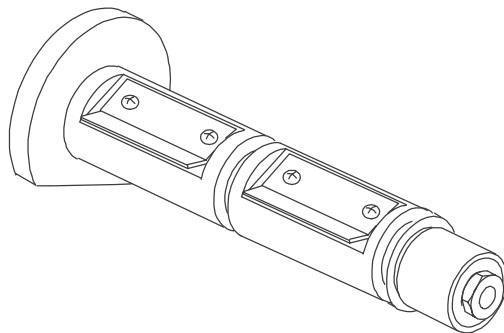


Figure 2-19. Aligning Spindle Segments

2. Place the ribbon roll on the ribbon supply spindle.

NOTE: *Make sure that the core is pushed up against the stop on the ribbon supply spindle and that the ribbon is aligned squarely with its core. If this is not done, the ribbon may not cover the printhead entirely on the inside, exposing print elements to potentially damaging contact with the media.*

- To make ribbon loading and unloading easier, make a leader for your ribbon roll if it doesn't already have one. Refer to Figure 2-20.

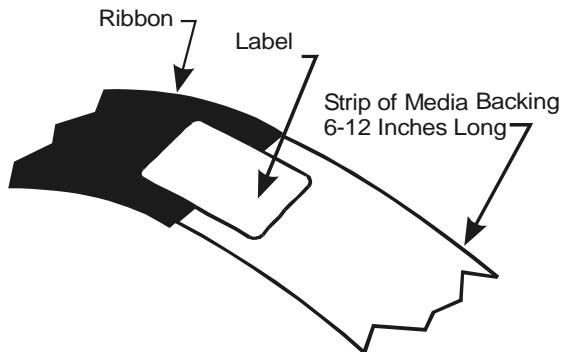


Figure 2-20. Making a Ribbon Leader

- Tear off a strip of media (labels and backing) about 6–12" (150–300 mm) long from the roll. Peel off a label from this strip. Apply half of this label to the end of the strip and the other half to the end of the ribbon. This acts as a ribbon leader.
- Open the printhead and thread the leader and attached ribbon through the print mechanism, under the upper roller and past the platen roller as shown in Figure 2-21.

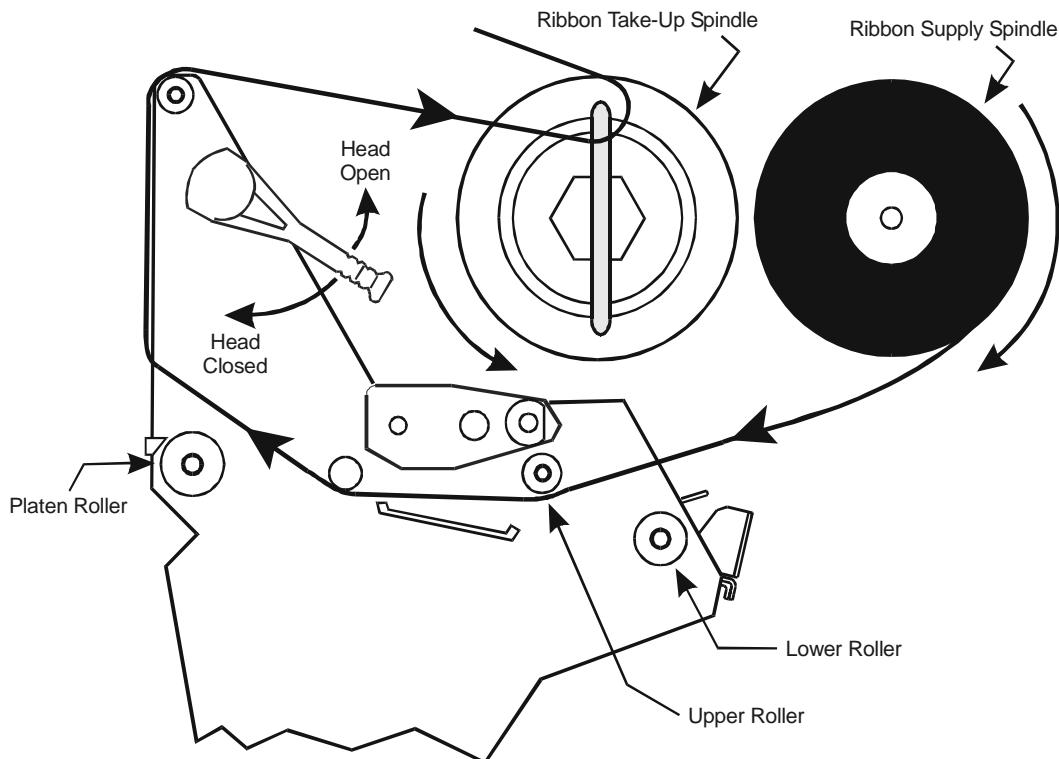


Figure 2-21. Ribbon Installation

- Before wrapping the ribbon around the ribbon take-up spindle, ensure the ribbon hook is placed correctly. The ribbon hook fits as shown in Figure 2-22.

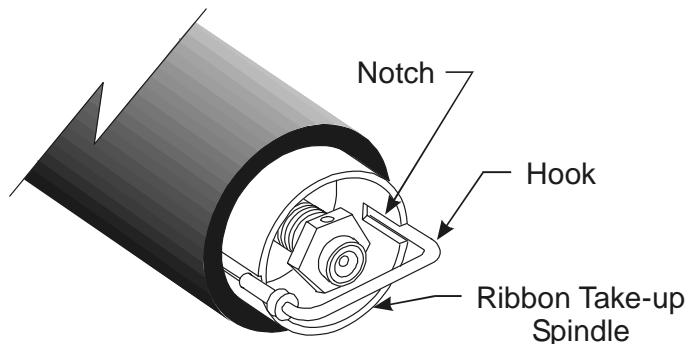


Figure 2-22. Ribbon Hook Fit

7. Place the ribbon with leader around the ribbon take-up spindle and wind counterclockwise for several turns.
8. Close the printhead.

Ribbon Removal

To unload ribbon, refer to Figure 2-23 and follow the procedure below.

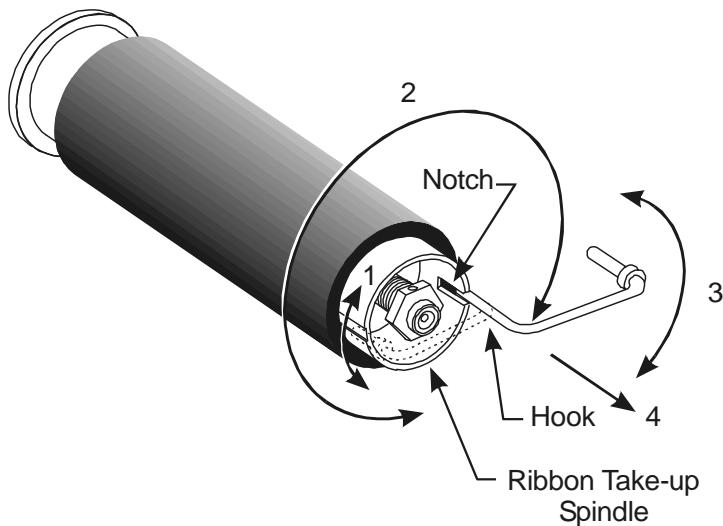


Figure 2-23. Ribbon Removal

1. If the ribbon is not exhausted, break or cut the ribbon as close to the ribbon take-up spindle as possible.
2. Push the hook forward or backward with your thumb until the metal end slips out of the notch (1). Rotate the hook to the side (2), then rotate it back and forth several times to loosen it (3).
3. Remove the loosened hook from the spindle (4).
4. Lightly tap the top of the used ribbon to loosen it. Then grasp the used ribbon and remove it from the ribbon take-up spindle.
5. Remove the core from the ribbon supply spindle.
6. Refer to "Ribbon Loading" on page 2-19 to load a new ribbon.

POSITIONING THE MEDIA SENSORS

Transmissive Sensor

The “web” or “gap” sensor, also known as the “transmissive sensor,” detects the gap or hole/notch between labels.

The transmissive sensor consists of two sections: a light source (the lower media sensor) and a light sensor (the upper media sensor). The media passes between the two.

The upper media sensor must be positioned:

- Directly over the hole or notch, or
- Anywhere along the width of the media if there is a gap between labels.

The lower media sensor must be positioned directly below the upper media sensor.

NOTE: *If you are using continuous media, position the upper media sensor over the media with the lower media sensor directly below so that the printer can detect an out-of-paper condition. See Figure 2-24.*

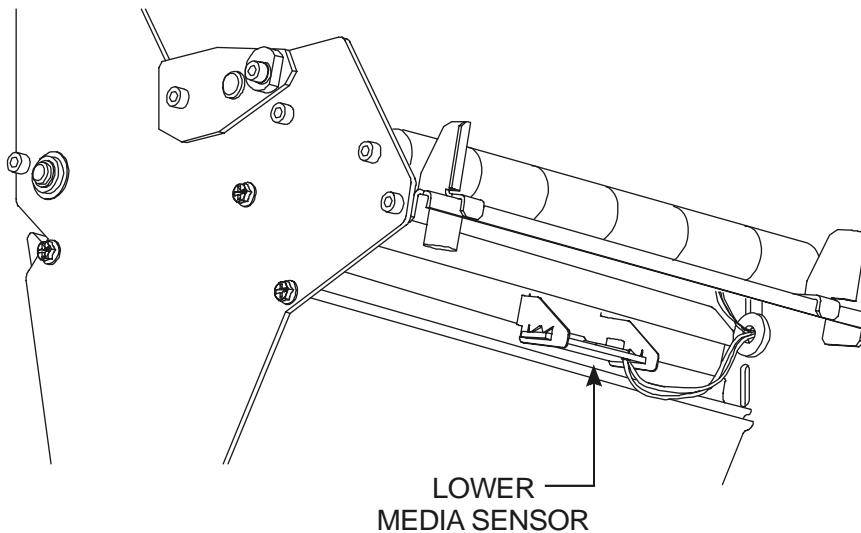


Figure 2-24. Lower Media Sensor Location

Adjusting the Upper Media Sensor

Refer to Figure 2-25 and use the following procedure to adjust the upper media sensor.

NOTE: *For clarity, not all printer parts are shown.*

1. Remove the ribbon, if installed.
2. Locate the upper media sensor. The upper media sensor “eye” is directly below the adjustment screw head.
3. Use a Phillips screwdriver to loosen the upper media sensor adjustment screw about one-half turn.
4. Using the tip of the screwdriver, slide the upper media sensor along the slot to the desired position.

5. Secure the upper media sensor adjustment screw.

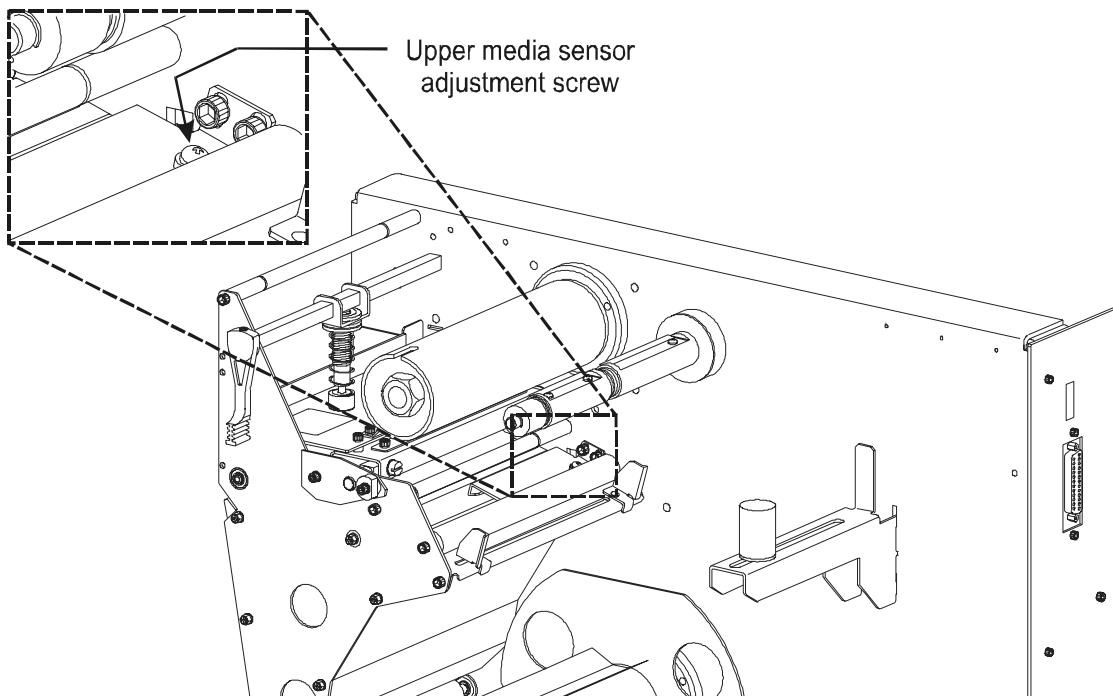


Figure 2-25. Upper Media Sensor Location

Adjusting the Lower Media Sensor

Position the lower media sensor by sliding it in its slot until it is positioned under the upper media sensor. See Figure 2-24.

Black Mark Sensor

The black mark sensor is in a fixed position and enabled via the front panel. See "Configuring the Printer" in the User's Guide for details.

SETTING UP THE SOFTWARE

Downloading Software Off the Internet

If you have access to a PC and the Internet, go to <http://www.zebra.com> for firmware downloads and instructions.

Zebra Printer Driver Installation

Many printer settings may also be controlled by your printer's driver or label preparation software. Please refer to the driver or software documentation for more information.

Zebra drivers allow developers and end users to use and build Windows applications that operate Zebra printers at their highest level of efficiency. Currently, we have drivers for:

- Windows 98/95/3.1 (Version 2.5)
- Windows NT and Windows 2000 (Version 2.3)

INITIAL POWER-UP

After you have correctly installed the media and ribbon, set the power switch to the on (1) position. The printer performs a Power On Self-Test (POST). When this is complete, the display shows, "PRINTER READY".

CALIBRATION

NOTE: *This procedure must be performed when the printer is first installed or if it does not properly detect the top of the label.*

To calibrate the printer, you must do the following:

- Determine the **type of media** or labels being used.
- Choose the **print method**.
- Position the **media sensors**, if necessary.
- **Configure the printer and software or driver** based on the label being used.
- Perform a **media and ribbon calibration**.
- Print a **test label**.

Two types of calibrations can be performed by the printer:

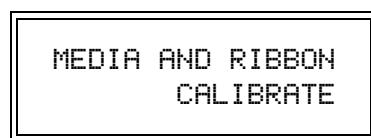
Type 1 — Auto Calibration: The 105SL printer auto calibrates on power up. Turning the printer on causes the printer to feed media and ribbon and set the values it detects. This includes media, media backing material (the spaces between labels), media out, and ribbon in/out status. This form of calibration also occurs as part of the "Media and Ribbon Calibration" procedures.

Type 2 — Manual Calibration (using non-continuous media): Performing the "Media and Ribbon Calibration" procedure, below, first resets the sensitivity of the sensors to better detect the media and ribbon you are using. With the sensors at their new sensitivity levels, the printer then performs the standard calibration described above. Changing the type of ribbon and/or media may require this calibration process to reset the sensitivity of the media and ribbon sensors. Indications that the sensitivity may need to be reset would be a "CHECK RIBBON" light ON with the ribbon properly installed or non-continuous media being treated as continuous media.

Media and Ribbon Calibration (Manual) Procedure

NOTE: *The following procedure is used to adjust the sensitivity of the media and ribbon sensors. It must be followed exactly as presented. All steps must be performed even if only one of the sensors requires adjustment.*

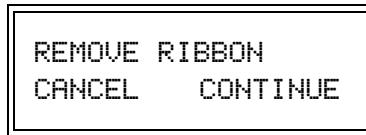
1. Press SETUP/EXIT key. Press NEXT/SAVE key until Media and Ribbon Calibrate appears.



2. Press the (+) key to start the calibration procedure. The front panel LCD should show:



3. Press the (-) key to cancel the operation, or open the printhead and remove as many labels as needed to load a section of blank backing material under the media sensor. If you are unsure of the media sensor location, refer to Figure 2-24 and Figure 2-25.
4. Press the (+) key to continue. The front panel LCD should show:



5. Press the (-) key to cancel the operation.
or
Remove the ribbon (sliding it as far to the right as possible has the same effect as removing it), and close the printhead.
6. Press the (+) key to continue. The front panel LCD should show:



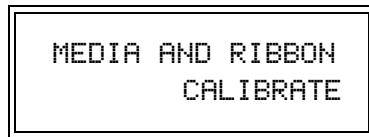
7. The printer automatically adjusts the base settings as determined by the media and ribbon sensors according to the specific media and ribbon combination you are using. The sensor profile adjustment moves the graph up or down to optimize the readings for your application.

When this part of the calibration process is completed, the front panel LCD shows:



8. Open the printhead and pull the media forward until a label is positioned under the media sensor.
9. Move the ribbon back to its proper position. To ensure that the ribbon is smooth, rotate the take-up spindle a couple of turns.
10. Close the printhead.

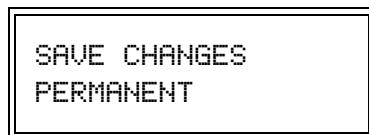
11. Press the (+) key to continue. The printer performs the second part of the calibration process and the front panel LCD shows:



The media sensor determines a new value based on the presence of media and backing and determines the label length. The ribbon sensor determines a new value based on the presence of ribbon.

Once media stops feeding, the calibration process is complete!

12. Press the SETUP/EXIT key to leave the programming mode. When asked SAVE CHANGES PERMANENT, press NEXT/SAVE to save permanently. The front panel LCD shows:



Configuration

After you have installed the media and ribbon and the POST (Power-On Self Test) is complete, the front panel display shows "PRINTER READY." You may now set printer parameters for your application using the front panel display and the five keys directly below it.

Refer to the *Zebra 105SL Printer User's Guide* for further details on configuring the printer for your application.

If it becomes necessary to restore the initial printer defaults, see the "FEED Key and PAUSE Key Self Test" in Section 3, Troubleshooting, of this manual.

Entering the Setup Mode

To enter the programming mode, press the SETUP/EXIT key. Press either the NEXT/SAVE key or PREVIOUS key to scroll to the parameter you wish to set. Throughout this process, press the NEXT/SAVE key to continue to the next parameter, or press the PREVIOUS key to go back to the previous parameter in the sequence.

Changing Password-Protected Parameters

Certain parameters are password-protected by factory default.

CAUTION:



Do not change password-protected parameters unless you're sure you know what you're doing! If they are set incorrectly, these parameters could cause the printer to function in an unpredictable way.

The first attempt to change one of these parameters (pressing the (–) or (+) keys) requires you to enter a four-digit password. This is done via the “ENTER PASSWORD” display. The (–) key changes the selected digit position. The (+) key increases the selected digit value. After entering the password, press the NEXT/SAVE key. The parameter you are trying to change is displayed. If the password was entered correctly, you can now change the value.

The default password value is 1234. The password can be changed using the ^KP (Define Password) ZPL II instruction.

NOTES: *Once the password has been correctly entered, it need not be entered again unless you leave and re-enter the programming mode using the SETUP/EXIT key.*

You can disable the password protection feature so that it no longer prompts you for a password by setting the password to ØØØØ via the ^KPØ ZPL/ZPL II command. To re-enable the password-protection feature, send the ZPL/ZPL II command ^KPx, where “x” can be any number, 1–4 digits in length, except Ø.

Leaving the Setup Mode

You can leave the setup mode at any time by pressing the **SETUP/EXIT** key. The **SAVE CHANGES** display appears. There are five choices, described below. Press the (+) or (–) key to display the sequence of choices. When your choice is displayed on the LCD, press the **NEXT/SAVE** key to save settings.

PERMANENT: saves the current settings. Values are stored in the printer even when power is turned OFF.

TEMPORARY: saves the current settings until changed again or until power is turned off.

CANCEL: cancels all setting changes made since entering the programming mode except the darkness and tear-off settings, if they were changed.

LOAD DEFAULTS: loads factory default settings. Refer to the User’s Guide for default values.

NOTE: *If you load factory default settings, you may have to perform a media and ribbon sensor calibration.*

LOAD LAST SAVE: reloads the settings made during the last permanent save.

SETTING PRINT PARAMETERS

Setting Darkness

Darkness, also known as burn duration, settings are dependent upon a variety of factors, including ribbon type, media and the condition of the printhead. You may adjust the darkness for consistent high-quality printing.

NOTE: *The feed key self test described in "troubleshooting" can also be used to determine the best darkness setting.*



CAUTION:

Set the darkness to the lowest setting possible for the desired print quality. Setting darkness too high for a given ribbon may cause ink smearing and/or printhead burning through the ribbon.

If printing is too light, you should increase the darkness. If printing is too dark, or if there is spreading or bleeding on printed areas, you should decrease the darkness. If there are voids in printed areas, adjust the toggle pressure.

NOTE: *The darkness setting takes effect right away. If labels are being printed, results can be seen immediately.*

Press the right oval key to increase darkness, or press the left oval key to decrease darkness.



Default: +10
Range: 0 to +30

Press the NEXT key to display TEAR OFF.

Setting the Tear-Off Position

The Tear-Off position adjusts the position of the media over the peel bar after printing.

Press the right oval key to increase the value or the left oval key to decrease the value.



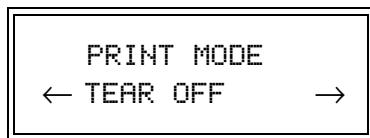
Each press of the key moves the tear-off position by four dot rows (positive values move the media farther out over the peel bar).

Default: +0
Range: -120 to +120

Press the NEXT key to display PRINT MODE.

Selecting the Print Mode

Print Mode settings tell the printer the method of media delivery you wish to use. Be sure to select a print mode your hardware configuration supports, since some selections displayed are for optional printer features.



Press the right or left oval key to display other selections.

Default: Tear Off

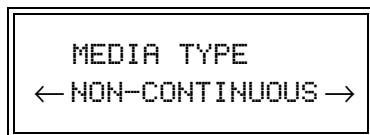
Selections: Tear Off, Peel Off, Rewind, Cutter

Press the NEXT key to display MEDIA TYPE.

Selecting the Media Type

The Media Type parameter specifies the kind of media used. "Continuous" media requires that a label length instruction (^LLxxxx) be included in your ZPL or ZPL II label format.

With "non-continuous media", the printer feeds media to calculate label length, the distance between two detections of the inter-label webbing, or alignment notch, or hole.



Press the right or left oval key to display other selections.

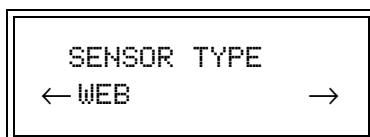
Default: Non-Continuous

Selections: Non-Continuous, Continuous

Press the NEXT key to display SENSOR TYPE.

Selecting the Sensor Type

This parameter tells the printer whether you are using media with a web (gap/space between labels, notch, or hole) to indicate the separations between labels or if you are using media with a black mark printed on the back. If your media does not have black marks on the back, leave your printer at the default (web).



Press the right or left oval key to display other selections.

Default: Web

Selections: Web, Mark

Press the NEXT key to display PRINT METHOD.

Selecting the Print Method

The Print Method parameter specifies the method of printing: direct thermal (no ribbon) or thermal transfer (using thermal-transfer media and ribbon).



CAUTION:

Selecting direct thermal when using thermal transfer media and ribbon results in an error message, but printing continues. If the print method is not changed to thermal transfer or if the media is not changed, damage to the printhead may result.

PRINT METHOD
THERMAL - TRANS.

Press the right or left oval key to display other selections.

Default: Thermal Transfer

Selections: Thermal Transfer, Direct Thermal

Press the NEXT key to display PRINT WIDTH.

Setting the Print Width

Print width selects the media width. Setting the width too narrow may result in portions of your label not being printed on the label material. In addition, the setting can affect the horizontal position of the label format if you invert the image via the ^POI ZPL II command. Setting the width too wide wastes formatting memory and can cause printing to occur on the platen to the side of the actual label.

The units of measure can be changed from millimeters to inches to dots. Inches and millimeters are shown as fractions of the dots per inch (for example, 4 101/203 is the value for 4-1/2").

PRINT WIDTH
→ 105 080/12 M +

Press the right oval key to increase the value or change the unit of measure and press the left oval key to change the selected character position. Select a print width that is at least as wide as your media.

Default; Range: Print width determines the printable area across the width of the label.

Press the NEXT key to display MAXIMUM LENGTH.

Setting the Maximum Label Length

Maximum Label Length specifies the distance from the leading edge of one label to the leading edge of the next label. Refer to Figure 2-26. A considerable part of the interlabel gap is part of the label length. Setting this parameter serves two functions:

- The value of this setting determines the maximum label length value to be used during the media portion of the calibration process.
- Only a few labels are required to set the media sensors.

Always set the length to a value that is one step above the actual length of the label you are using. For example, if the label length is 5 inches (126 mm), set the parameter for 6 inches (152 mm). If the label length is 7.5 inches (190 mm), set the parameter for 8.0 inches (202 mm).

NOTE: *Before you begin the media and ribbon calibration procedure, be sure the maximum length is set to a value one step greater than the actual media. If the maximum length is set to a lower value, the printer assumes that continuous media is loaded, which results in the printer not calibrating.*

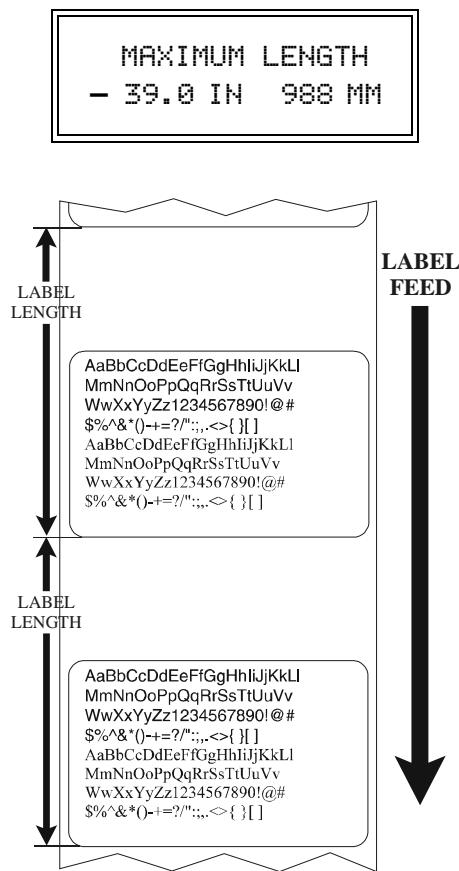


Figure 2-26. Maximum Label Length

Press the left oval key to decrease the value or press the right oval key to increase the value.

Default: 39.0 inches (988 mm)

Range: 2.0 inches (50 mm) to 39.0 inches (988 mm) in 1.0 inch (25.4 mm) increments.

Press the NEXT key to display LIST FONTS.

LISTING PRINTER INFORMATION

List Fonts

Use this selection to print a label that lists all of the fonts currently available in the memory of the printer. Fonts may be stored in optional font EPROMs and as part of firmware EPROMs, on an optional PCMCIA memory card, Flash memory, or downloaded and stored in formatting memory (RAM).

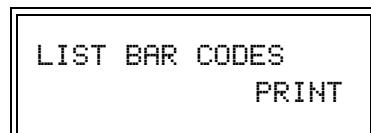


Press the right oval key to print a label listing all of the fonts.

Press the NEXT key to display LIST BAR CODES.

List Bar Codes

Use this selection to print a label that lists all of the bar codes currently available in the memory of the printer.



Press the right oval key to print a label listing all of the bar codes.

Press the NEXT key to display LIST IMAGES.

List Images

This selection is used to print a label that lists all of the graphic images currently stored in the memory of the printer's RAM, optional EPROM, or on an optional memory card.



Press the right oval key to print a label listing all of the images.

Press the NEXT key to display LIST FORMATS.

List Formats

This selection is used to print a label that lists all of the formats currently stored in the memory of the printer's RAM, optional EPROM, or on an optional memory card.

LIST FORMATS
PRINT

Press the right oval key to print a label listing all of the formats.

Press the NEXT key to display LIST SETUP.

List Setup

This selection is used to print a label that lists the current printer's configuration information (same as the CANCEL key self test).

LIST SETUP
PRINT

Press the right oval key to print a label listing the current printer configuration.

Press the NEXT key to display LIST ALL.

List All

Use this selection to print a label that lists the five previous selections, as described.

LIST ALL
PRINT

Press the right oval key to print a label listing all of the available fonts, bar codes, images, formats and the current printer configuration.

Press the NEXT key to display INITIALIZE CARD.

Initialize Card

This selection initializes the optional memory card.



CAUTION:

Perform this operation only when it is necessary to erase all previously stored information in the memory card.
If you do not want to erase all stored information, press the NEXT key to bypass the operation.

INITIALIZE CARD
YES

1. Press the right oval key to select “YES”. If your printer is set to require a password, you are prompted to enter the password.
2. Enter the password then press the NEXT key.
3. The display shows “INITIALIZE CARD?” Press the right oval key to select “YES”. The display shows “ARE YOU SURE?”

ARE YOU SURE	
NO	YES

4. Press the right oval key to select “YES” and begin the initialization, or, press the left oval key to select “NO” to cancel the request and return to the “INITIALIZE CARD” prompt.
5. Press the SETUP/EXIT key followed by the NEXT key once you have selected YES.

If initialization is still in process, the display flashes back and forth between the two phrases “CHECKING B: MEMORY” and “PRINTER IDLE.”

When initialization is complete, the printer automatically exits the configuration mode and the display shows “PRINTER READY”.

NOTE: *Depending on the amount of memory in the memory card, initialization may take up to five minutes to complete.*

Initialize Flash Memory

This selection initializes the flash memory.

CAUTION:



Perform this operation only when it is necessary to erase all previously stored information in the optional flash memory.
If you do not want to erase all stored information, press the NEXT key to bypass the operation.

INIT FLASH MEM.	
YES	

1. Press the right oval key to select “YES”. If your printer is set to require a password, you are prompted to enter the password. Enter the password using (–) and (+) switches and then press the NEXT key.
2. The display shows “INITIALIZE FLASH MEM?” Press the right oval key “YES”. The display shows “ARE YOU SURE?”

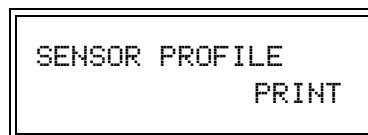
ARE YOU SURE	
NO	YES

3. Press the right oval key "YES" to begin initialization, or, press the left oval key "NO" to cancel the request and return to the "INITIALIZE FLASH" prompt.
4. Press the SETUP/EXIT key followed by the NEXT/SAVE key. If initialization is still in process, the display flashes back and forth between the two phrases "CHECKING E: MEMORY" and "PRINTER IDLE."
5. When initialization is complete, the printer automatically exits the configuration mode and the display shows "PRINTER READY."

NOTE: *Depending on the amount of free Flash memory, initialization may take up to one minute to complete.*

Sensor Profile

Press the right oval key to print a graphic representation (Media Sensor Profile) of the changes in density between the media and the web (backing). Use the Sensor Profile to help troubleshoot media registration problems.



Refer to Figure 2-27. The Media Sensor Profile shows three conditions. The black area along the bottom of the profile illustrates media passing by the media sensor. When the level goes above the point labeled "WEB" (black spikes), only the backing material is passing by the sensor. When a notch or hole in the media passes by the sensor, the level goes above the point labeled "MEDIA". If the level remains above the "MEDIA" point for longer than 0.5 seconds, this signifies a Media Out condition. The Ribbon Profile indicates Ribbon IN if the black level is above the point labeled "RIBBON".

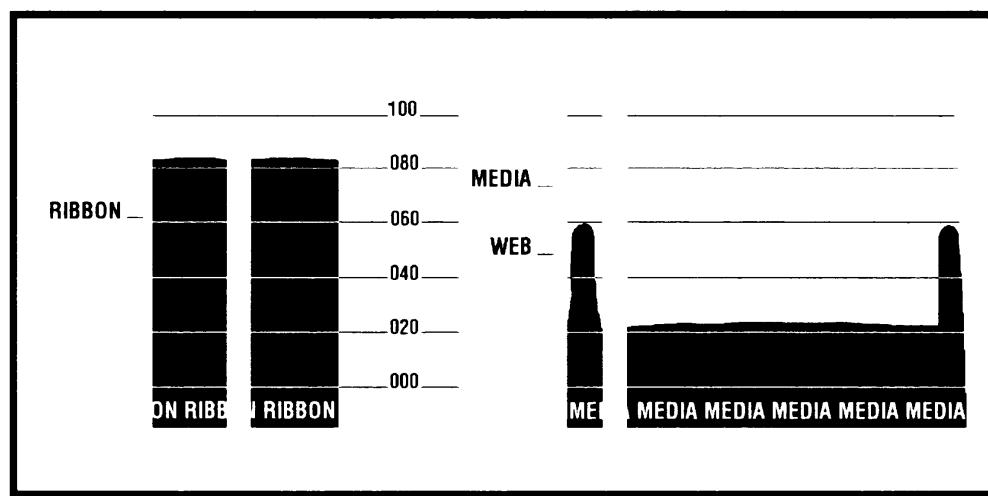


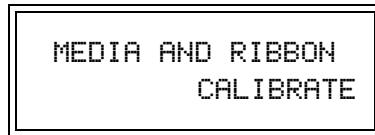
Figure 2-27. Sensor Profile Sample Label

Press the NEXT key to display MEDIA AND RIBBON.

Media and Ribbon Sensor Calibration

NOTES: Before you begin this procedure, make sure that the maximum length is set to a value greater than the length of the labels are using. If the maximum length is set to a lower value, the calibration process assumes that continuous media is in the printer.

Ensure that the “Media Type” and “Maximum Length” values have been configured prior to performing this calibration process.



Press (+) to perform calibration.

Refer to “CALIBRATION” on page 2-24 for further details.

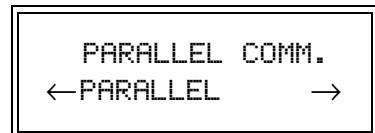
Setting Communication Parameters

Communication parameters must be set correctly for the printer to receive data from the host. These parameters ensure that the printer and host are “speaking the same language.”

All communications parameters are password protected.

Setting Parallel Communications

Select the communications port that matches the one being used by the host computer.



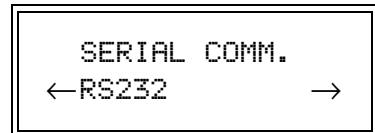
Press the right or left oval key to display other selections.

Default: Parallel

Selections: Parallel, Twinax/Coax

Setting Serial Communications

Select the communications port that matches the one used by the host computer.



Press the right or left oval key to display other choices.

Default: RS232

Selection: RS232, RS422/485, RS485 Multidrop

Press the NEXT Key to display BAUD rate.

Setting the Baud Rate

The baud rate of the printer must match the baud rate of the host for communications to take place. Select the baud rate that matches the one used by the host.



Press the right oval key to increase the value, or press the left oval key to decrease the value.

Default: 9600

Selections: 110, 300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, 115200

Press the NEXT key to display DATA BITS.

Setting the Data Bits

The data bits of the printer must match the data bits of the host for communications to take place. Select the data bits that match the ones used by the host.

NOTE: *This parameter must be set to 8 data bits to use the full Code Page 850 character set. See the ZPL II Programming Guide for further information.*



Press the right or left oval key to display other selections.

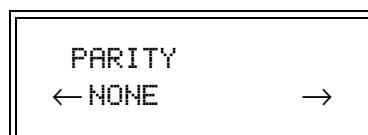
Default: 8 Bits

Selections: 7 Bits, 8 Bits

Press the NEXT key to display PARITY.

Setting the Parity

The parity of the printer must match the parity of the host for communications to take place. Select the parity that matches the one used by the host.



Press the right or left oval key to display other selections.

Default: None

Selections: Even, None, Odd

Press the NEXT key to display STOP BITS.

Setting the Stop Bits

The stop bits of the printer must match the stop bits of the host for communications to take place. Select the number of stop bits that match the quantity being used by the host.



Press the right or left oval key to display other selections.

Default: 1 Stop Bit

Selections: 1 Stop Bit, 2 Stop Bits

Press the NEXT key to display HOST HANDSHAKE.

Setting the Host Handshake

The handshake protocol of the printer must match the handshake protocol of the host for communications to take place. Select the handshake protocol that matches the one being used by the host.



Press the right or left oval key to display other selections.

Default: XON/XOFF

Selection: XON/XOFF, DSR/DTR

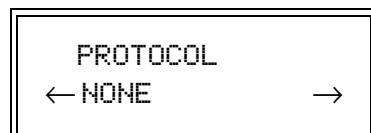
Press the NEXT key to display PROTOCOL.

Setting the Protocol

Protocol is a type of error checking system. Depending on the selection, an indicator is sent from the printer to the host signifying received data. Select the requested protocol by the host. Further details on protocol can be found in the ZPL II Programming Reference Volumes I and II.

NOTES: *Zebra is the same as ACK/NACK except that with Zebra the response messages are sequenced.*

If Zebra is selected, the printer must use “DTR/DSR” host handshake protocol.



Press the right or left oval key to display other selections.

Default: None (Always select “None” if you are not using error checking software.)

Selections: None, Zebra, ACK/NACK

Press the NEXT key to display NETWORK ID.

Setting the Network ID

Use Network ID to assign a unique number to a printer used in an RS-422/RS-485 network. This gives the host the means to address a specific printer. This does not affect TCP/IP or IPX networks.



Press the left oval key to move to the next digit position, and press the right oval key to increase the value of the selected digit.

Default: 000
Range: 000 – 999

Press the NEXT key to display COMMUNICATIONS.

Setting the Communications Mode

The Communication Diagnostics Mode is a tool to check the interconnection between the printer and the host. When DIAGNOSTICS is selected, all data sent from the host to the printer is printed as an ASCII hex printout. The printer prints all ASCII characters received, including ASCII control codes (for example, CR [Carriage Return]). Figure 2-28 shows a sample printout.

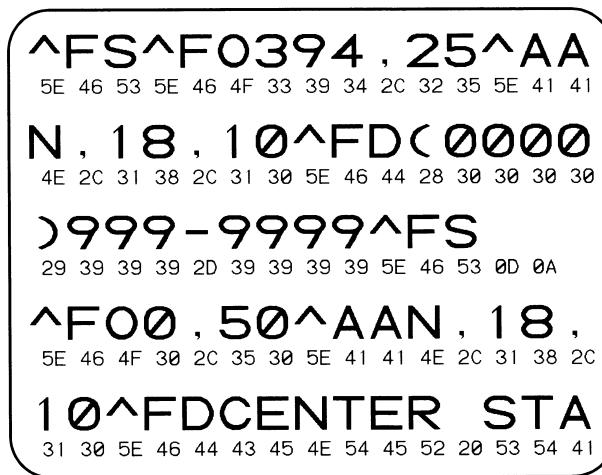


Figure 2-28. Diagnostics Sample Label

Press the right or left oval key to display other selections.

Default: Normal Mode
Selections: Normal Mode, Diagnostics

- NOTE:**
- On diagnostic printouts:*
 - FE indicates a framing error.*
 - OE indicates an overrun error.*
 - PE indicates parity error.*
 - NE indicates noise.*

For any errors, check that your communication parameters are correct. Set the print width equal to or less than the label width used for the test.

Press the NEXT key to display CONTROL PREFIX.

The Control Prefix Character

The control prefix character is a two-digit hex value. Once configured, this character signifies the start of a ZPL/ZPL II control instruction.



Press the left oval key to move to the next digit position, and press the right oval key to increase the value of the digit. (The "H" is displayed but not entered as part of the value.)

- Default:** 7E (tilde)
Range: 00 – FF (Exclude the values indicated on the ASCII Code Chart in the ZPL II Guide Volume II Appendix B.)

Press the NEXT key to display FORMAT PREFIX.

The Format Prefix Character

The format prefix character is a two-digit hex value. Once configured, this character signifies the start of a ZPL or ZPL II format instruction.



Press the left oval key to move to the next digit position, and press the right oval key to increase the value of the digit. (The "H" is displayed but not entered as part of the value.)

- Default:** 5E (caret)
Range: 00 – FF (Exclude the values indicated on the ASCII Code Chart in the ZPL II Guide Volume II Appendix B.)

Press the NEXT key to display DELIMITER CHAR.

The Delimiter Character

The delimiter character is a two-digit hex value. Once configured, this character acts as a parameter place marker in ZPL/ZPL II. Refer to the “ZPL II Programming Guide” for more information.



Press the left oval key to move to the next digit position, and press the right oval key to increase the value of the digit. (The displayed “H” is not entered as part of the value.)

Default: 2C (comma)

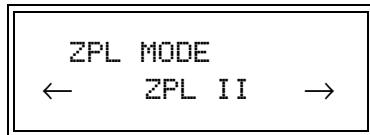
Range: 00 – FF (exclude the values indicated on the ASCII Code Chart.)

Press the NEXT key to display MODE.

Selecting ZPL Mode

The printer accepts label formats written in either ZPL or ZPL II. Refer to the “ZPL II Programming Guide” for more information on the differences between ZPL and ZPL II.

The printer remains in the selected mode until changed by this front panel instruction or by sending the ^SZ ZPL/ZPL II command to the printer.



Press the right or left oval key to display other selections.

Default: ZPL II

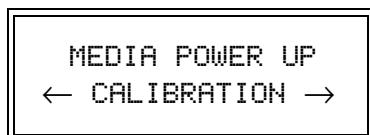
Selections: ZPL II, ZPL

Press the NEXT key to display MEDIA POWER UP.

POWER UP AND HEAD CLOSE PARAMETERS

Media Power Up

Turning on the printer determines the action of the media. “Calibration” recalibrates the media and ribbon sensors, “Feed” feeds the label to the first web, “Length” calculates the length of the label, and “No Motion” means the media does not move.



Press the right or left oval key to display other selections.

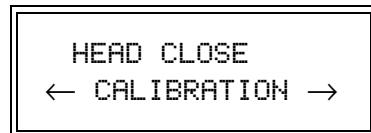
Default: Calibration

Selections: Feed, Calibration, Length, No Motion

Press the NEXT key to display HEAD CLOSE.

Head Close

This setting determines the action of the media after the opened printhead is closed. “Calibration” recalibrates the media and ribbon sensors, “Feed” feeds the label to the first web, “Length” calculates the length of the label, and “No Motion” means the media does not move.



Press the right or left oval key to display other selections.

Default: Calibration

Selections: Feed, Calibration, Length, No Motion

Press the NEXT key to display BACKFEED.

LABEL POSITIONING PARAMETERS

Backfeed Sequence

This parameter establishes when backfeed occurs after a label is removed in the Peel Off or Cutter modes. It has no effect in Rewind or Tear Off modes.

This parameter setting can be superseded by the ~JS instruction when received as part of a label format. Refer to the “ZPL II Programming Guide.”



Press the right oval key for the next choice, or press the left oval key for the previous choice.

Default: Default

Selections: Default, After, Before, Off, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%

Press the NEXT key to display LABEL TOP.

Setting the Label Top Position

The label top position controls the initial vertical print position on the label (viewed as the label exits the printer). The reference default position is to the leading edge of the label that follows the one to be printed. Refer to Figure 2-29. If there is a lengthy web between labels, the label format may begin printing on the backing material. To set the position where the format begins printing, change the label top position value.



Press the right oval key to increase the value, or press the left oval key to decrease the value. Each positive number moves the label top position down by one dot row; each negative number moves the position up by one dot row.

Default: +0
Range: -120 to +120

Press the NEXT key to display LEFT POSITION.

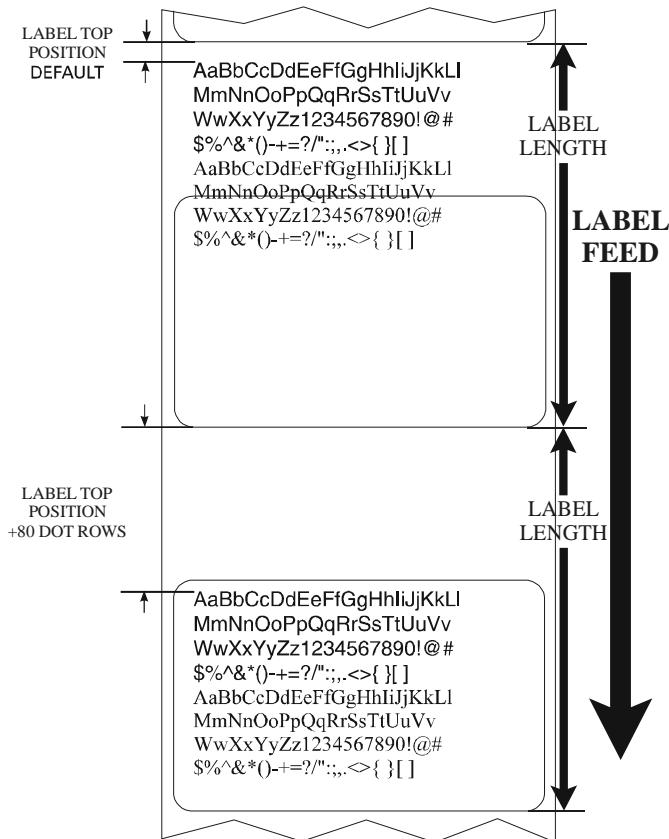
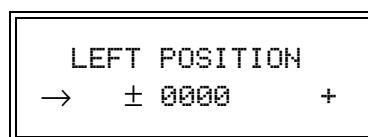


Figure 2-29. Label Top Position

Setting the Left Position

The left position controls the initial print position from the left edge of a label (view as the label exits the printer). The reference default position is to the left edge of the media. Refer to Figure 2-30. Depending on the width of the media, the label format may begin printing on the backing material or on the platen. To set the position where the format begins printing, change the left position value.



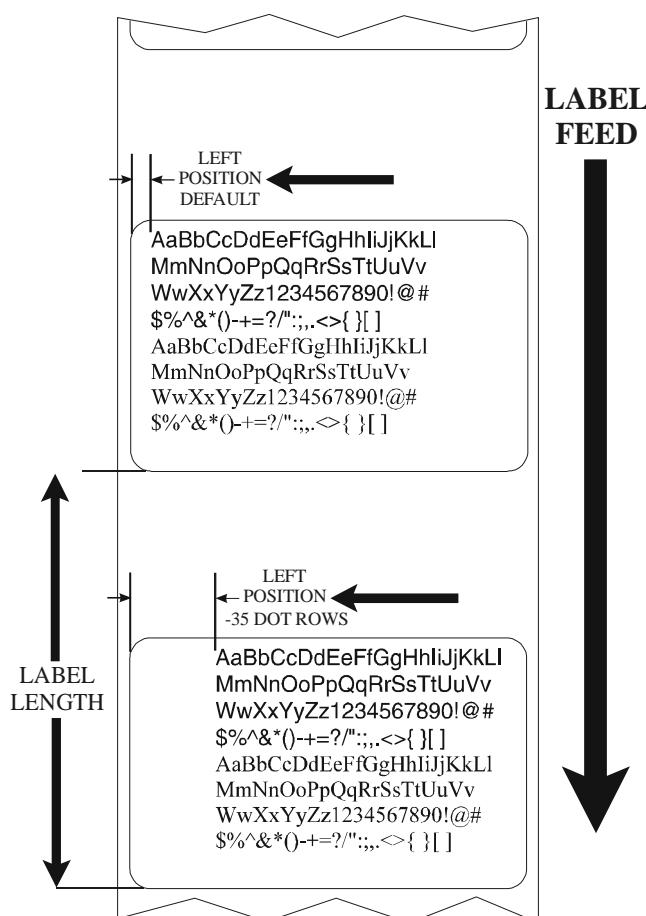
Press (-) to move the cursor to the next digit, and press the (+) to change the +/- value and increase the value of the digit ("+" shifts to the left, "-" shifts to the right). The displayed value represents the number of dot positions the format shifts right or left.

Default:

0000

Range:

-9999 to +9999 (If a negative value is required, enter the numeric value first, then change the plus to a minus sign.)

**Figure 2-30. Left Position**

Press the NEXT key to display HEAD RESISTOR.

Setting the Head Resistance Value

This value has been preset at the factory to match the resistance value of the printhead. It must not be changed, unless the printhead is replaced.

Before replacing a printhead, look on the bottom of the new printhead for the label that shows the resistance (ohm – Ω) value.



CAUTION:

Do not set the value higher than that shown on the printhead. Setting the value to a higher number can damage the printhead.

HEAD RESISTOR	
→ 0488 OHMS	+

Press the left oval key to move to the next digit position, and press the right oval key to increase the value of the digit.

Initial Value: Factory set

Range: 0488 – 2415

Press the NEXT key to display WEB S.

PRINTING CONTROLS

The following eight parameters: Web Sensor, Media Sensor, Ribbon Sensor, Mark Sensor, Mark Media Sensor, Media LED, Ribbon LED, and Mark LED are automatically calculated during the calibration procedure and typically do not require adjustment. Refer to the ZPL II Programming Guide for further information on these parameters.

WEB S. 057 - ████ +	MEDIA S. 089 - ██████████ +	RIBBON S. 071 - ██████████ +
MARK S. 000 █ +	MARK MED S. 000 █ +	MEDIA LED 001 - █ +
RIBBON LED 008 - █ +		MARK LED 005 - ███ +

Press the NEXT key repeatedly to skip these parameters and go to the LCD ADJUST display.

Setting the LCD Adjust

This parameter allows you to adjust the brightness of your display if your display is difficult to read.

LCD ADJUST 10	
██████████	+

Press the right oval key to increase the value (increases the brightness). Press the left oval key to decrease the brightness.

Default: 10

Range: 00 to 19

Press the NEXT key to display FORMAT CONVERT.

Setting the Format Convert

This parameter selects the bitmap scaling factor. The first number is the original dots per inch (dpi) value; the second, the dpi to which you would like to scale.



Press the right or left oval key to display other choices.

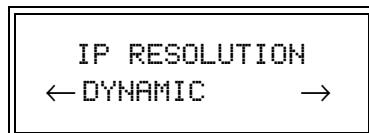
Default: None

Selections: None, 150 → 300, 150 → 600, 200 → 600, 300 → 600

Press the NEXT key to display IP Resolution.

IP Resolution

Depending on the selection allows either the user ("permanent") or the server ("dynamic") to select the IP address. For more information, refer to ZebraNet Networking: PrintServer II Installation and the User's Guide for this printer.



Press the right or left oval key to display other choices.

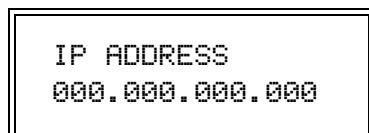
Default: Dynamic

Selections: Dynamic, Permanent

Press the NEXT key to display IP Address.

IP Address

This parameter allows you to select the IP address if "permanent" was chosen in "IP RESOLUTION." (If "dynamic" was chosen, the user cannot select the address.) For more information, refer to ZebraNet Networking: PrintServer II Installation and User's Guide.



Press the left oval key to move to the next digit position, press the right oval key to increase the value of the digit.

Press the NEXT key to display SUBNET MASK.

Subnet Mask

This parameter selects the part of the IP address that is considered to be part of the local network. It can be reached without going through the default gateway.

SUBNET MASK
000.000.000.000 +

Press the left oval key to move to the next digit position, press the right oval key to increase the value of the digit.

Press the NEXT key to display DEFAULT GATEWAY.

Default Gateway

This parameter allows you to select the IP address that the network traffic is routed through if the destination address is not part of the local network.

DEFAULT GATEWAY
000.000.000.000 +

Press the left oval key to move to the next digit position, press the right oval key to increase the value of the digit.

Press the NEXT key to display LANGUAGE.

Language

This parameter allows you to change the language used on the front panel display.

LANGUAGE
← ENGLISH →

Press the right or left oval key to display other choices.

Default: English

Selections: English, Spanish, French, German, Italian, Norwegian, Portuguese, Swedish, Danish, Spanish 2, Dutch, Finnish, Japanese

You have now completed the entire configuration and calibration sequence. You may either press the NEXT/SAVE key or the SETUP/EXIT key.

PCMCIA CARD INSTALLATION

The PCMCIA card slot is a factory installed option. If your printer has that option, you may install or change the card at any time. Use the following procedure to install a PCMCIA card.

CAUTION:



OBSERVE PROPER ELECTROSTATIC SAFETY PRECAUTIONS WHEN HANDLING ANY STATIC-SENSITIVE COMPONENTS SUCH AS PRINTED CIRCUIT BOARDS AND PRINTHEADS.

1. Place the power switch in the Off (O) position and disconnect the AC power cord. Disconnect the data cables.
2. Refer to Figure 2-31 and remove and retain the screw and the option card shield from the rear of the printer.
3. If you are replacing the card, press the card eject button and slide the card out of the slot.
4. Slide the new card into the slot far enough that the eject button pops out.
5. Reinstall the option card shield and secure it with the screw.
6. Reconnect the AC power cord and all data cables.
7. Hold in the FEED key while placing the power switch in the On (I) position.
8. Verify the presence of additional memory or optional fonts by checking the information on the configuration label printed during the power on sequence.
9. The printer is now ready to operate with the additional memory or font option.

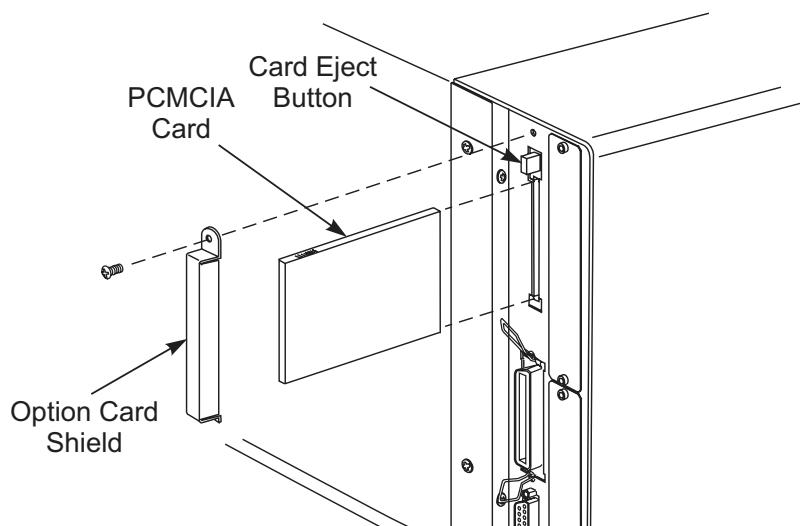


Figure 2-31. Installing PCMCIA Card

SECTION 3

TROUBLESHOOTING

OVERVIEW OF ZIP SUPPORT

If you have access to a PC and the Internet, go to <http://www.zebra.com>.

Click on "Service and Support".

Then click on "On Line Technical Support" (ZIP Support).

"Welcome to Zebra's ZIP Support"

"Search our Knowledge Base of technical support and troubleshooting information for Zebra products. Our goal is to ensure that you receive prompt, courteous service and a solution that meets your needs."

You are now connected to a user-friendly on-line technical help source. Follow the instructions on that screen.

TEST ROUTINES

Test routines are built into the Zebra 105SL printers to aid the technician in diagnosing faults. Some of these tests are enabled by pressing a front panel key while turning the printer power switch ON.

POWER-ON SELF TEST

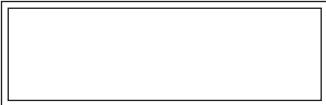
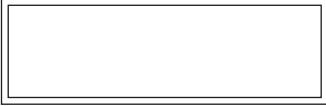
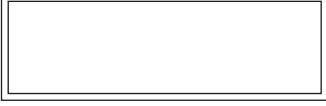
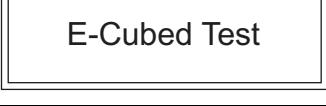
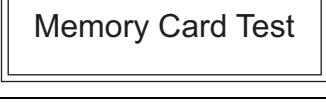
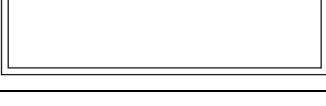
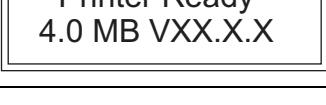
A Power-On Self Test (POST) is performed each time the printer is set to the On (I) position. This test checks for proper initialization of various electronic circuits and establishes starting parameters as those stored in the printer's memory. During this test sequence, the front panel LEDs turn on and off to ensure proper operation.

At the end of this self test, only the POWER LED remains lit. If other LEDs are also lit, refer to "Basic Troubleshooting" on page 3-11.

If the printer is set up for non-continuous media, one or more labels feed out.

To initiate the Power-On Self Test, turn the printer ON using the power switch located at the rear of the printer. The front panel power-on indicator lights. The other front panel LEDs and the Liquid Crystal Display (LCD) monitor the progress and indicate the results of the self test. The normal self test sequence is shown on the following page.

The normal Power On Self Test sequence is as follows:

1.		All lights turn on simultaneously and then turn off in sequence through the following steps.
2.		SRAM functionality test performed.
3.		Option ROM functionality test performed. The words "Not Installed" is added to the display if optional ROM is not used.
4.		Printhead is checked for proper operation.
5.		Processor functionality test performed. The word "Failed" is added to the display if the test fails.
6.	 E-Cubed Test	E-cubed functionality test performed. The word "Failed" is added to the display if the test fails.
7.	 EEPROM Test	EEPROM/PROM functionality test performed. The word "Failed" is added to the display if the test fails.
8.	 Memory Card Test	Optional PCMCIA Memory Card functionality test performed. The word "Failed" is added to the display if the test fails.
9.	 CHECKING ON BOARD FLASH	Checking flash memory.
10.	 Printer Ready 4.0 MB VXX.X.X	Depending on how the ^{MF} (Media Feed) instruction is set, the printer feeds to the first web or label length, calibrate ribbon and media sensors, or set label length and feed one or more labels.
10.	 Printer Ready 4.0 MB VXX.X.X	Printer is ready for operation. Refer to "Configuration" in Section 2 to set specific parameters. Designate prompt language with the ^{KL} command or from the menu.

PRINTER SELF TESTS

Introduction

These self tests, illustrated on the following pages, produce sample labels and provide specific information that helps determine the operating conditions for the printer.

Each self test is enabled by holding in a specific front panel key or keys while turning the power switch ON. Keep the key(s) pressed until the front panel LEDs turn ON.

When the Power-On Self Test (POST) is completed, the selected printer self test starts automatically.

Considerations

When performing self tests, all data interface cables should be disconnected from the printer.

Full-width media should be used when performing these tests. If your media is not wide enough, the test labels may print on the label and the platen roller, or in the case of narrow media, not on the label at all. To prevent this from happening, check the configuration parameter "Setting the Print Width", and ensure it is correct for the media you are using.

Labels less than full-width in size lose printing on the right side. Label length determines the amount of print starting at the top of the label. If your media is too short, the test label continues on the next label.

When canceling a self test prior to its actual completion, always turn the printer power OFF and then back ON to reset the printer.

If the printer is in Peel-Off mode while these self tests are performed, the operator must remove the labels manually as they become available.

CANCEL Key Self Test

This self test prints a single label which contains a listing of the current configuration parameters stored in configuration (EEPROM) memory. See Figure 3-1.

To perform this self test, press the CANCEL key while turning the power switch ON.

The configuration may be changed either temporarily for specific label formats or ribbon and label stock, or permanently by saving the new parameters in EEPROM memory. Saving new parameters occurs whenever a printer configuration procedure is performed.

Refer to the User's Guide for further details on the printer configuration procedure.

PRINTER CONFIGURATION	
Zebra Technologies ZTC 105SL-200dpi	
+10.....	DARKNESS
+000.....	TEAR OFF
TEAR OFF.....	PRINT MODE
CONTINUOUS.....	MEDIA TYPE
WEB.....	SENSOR TYPE
THERMAL-TRANS.....	PRINT METHOD
104 0/8 MM.....	PRINT WIDTH
1800.....	LABEL LENGTH
39.0IN 988MM.....	MAXIMUM LENGTH
PARALLEL.....	PARALLEL COMM.
RS232.....	SERIAL COMM.
9600.....	BAUD
8 BITS.....	DATA BITS
NONE.....	PARITY
1 STOP BIT.....	STOP BITS
XON/XOFF.....	HOST HANDSHAKE
NONE.....	PROTOCOL
000.....	NETWORK ID
NORMAL MODE.....	COMMUNICATIONS
<,> ZEH.....	CONTROL PREFIX
<,> 5EH.....	FORMAT PREFIX
<,> 2CH.....	DELIMITER CHAR
ZPL II.....	ZPL MODE
CALIBRATION.....	MEDIA POWER UP
CALIBRATION.....	HEAD CLOSE
DEFAULT.....	BACKFEED
+000.....	LABEL TOP
+0000.....	LEFT POSITION
0740.....	HEAD RESISTOR
057.....	WEB S.
089.....	MEDIA S.
071.....	RIBBON S.
000.....	MARK S.
001.....	MARK MED S.
003.....	MEDIA LED
004.....	RIBBON LED
024.....	MARK LED
+10.....	LCD ADJUST
DPSWFXM.....	MODES ENABLED
.....	MODES DISABLED
832 8/MM FULL.....	RESOLUTION
V40.10.0 <-.....	FIRMWARE
CUSTOMIZED.....	HARDWARE ID
4096.....	CONFIGURATION
None.....	R: RAM
None.....	B: MEMORY CARD
0768.....	E: ONBOARD FLASH
None.....	FORMAT CONVERT
005 DISPLAY.....	J12 INTERFACE
007 POWER SUPPLY.....	J11 INTERFACE
*** None.....	J10 INTERFACE
DYNAMIC.....	TWINAX/COAX ID
ALL.....	IP RESOLUTION
010.003.004.079.....	IP PROTOCOL
255.255.255.000.....	IP ADDRESS
010.003.004.001.....	SUBNET MASK
010.003.004.001.....	DEFAULT GATEWAY

FIRMWARE IN THIS PRINTER IS COPYRIGHTED

Figure 3-1. CANCEL Key Test Sample Label

PAUSE Key Self Test

1. The initial self test prints 15 labels at a speed of 2" per second, then automatically PAUSES the printer. When the PAUSE key is pressed, an additional 15 labels print. See Figure 3-2.
2. While the printer is PAUSED, press the CANCEL key once to alter the self test. When the PAUSE key is pressed, the printer prints the self test labels at 6" per second. Fifteen additional labels are printed each time the PAUSE key is pressed.
3. While the printer is PAUSED, press the CANCEL key a second time to change the self-test print speed back to 2" per second. When the PAUSE key is pressed, the printer prints 50 labels.
4. While the printer is PAUSED, press the CANCEL key a third time to change the self-test print speed to 6" per second. When the PAUSE key is pressed, the printer prints 50 labels.
5. While the printer is PAUSED, press the CANCEL key a fourth time to change the self-test print speed to the printer's fastest speed. When the PAUSE key is pressed, the printer prints 15 labels.

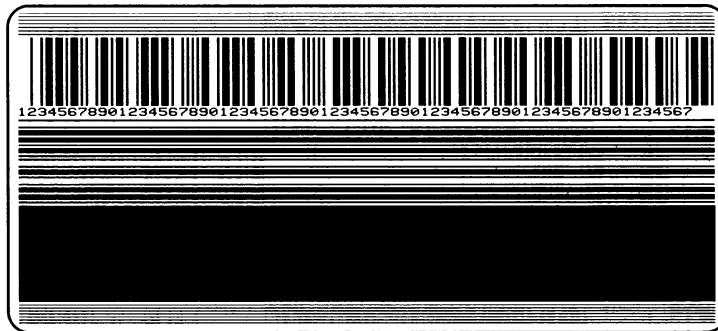


Figure 3-2. PAUSE Key Test Sample Label

FEED Key Self Test

NOTE: *The CANCEL Key Self Test should be performed prior to this self test.*

Information on the printed configuration label (CANCEL Key Self Test) is used with the results of this self test to determine the best darkness setting for a specific media/ribbon combination.

The FEED key self test label prints out at various positive and negative darkness settings relative to the darkness value shown on the configuration label. See the label example in Figure 3-3. Inspect these labels and determine which one has the best darkness setting for the application. This value can be entered into the printer by configuring the "Setting Darkness" parameter found in the configuration section of the User's Guide.

The value printed on the selected test label is added to (+) or subtracted from (-) the "Darkness" value specified on the configuration label.

The resulting numeric value, 0 to 30, that is best for that specific media/ribbon combination should be entered as the "Darkness" parameter.



Figure 3-3. FEED Key Self Test Sample Label

Communications Diagnostics Test

This test is controlled by configuring the “Setting Communications Mode” parameter found in the configuration section of the printer’s User’s Guide. Refer to Figure 3-4 for a sample label resulting from this test.

NOTE: *This label is inverted when printed.*

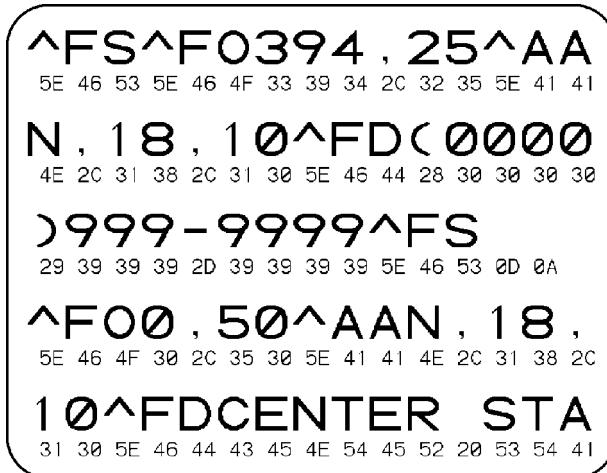


Figure 3-4. Communications Diagnostics Self Test

FEED Key and PAUSE Key Self Test

To reset the printer configuration to the factory default values, press these two keys at the same time, while turning the power ON. The printer performs a normal startup, resets to factory defaults, calibrates, and saves the settings.

PAUSE Key and CANCEL Key Self Test

This self test can be used to verify proper printer operation after parts have been replaced or adjusted. When activated, the printer prints a maximum of 500 head test labels. A serialized number prints on each label. Pressing the PAUSE key suspends printing. Resuming printing after pausing causes the first label to backfeed prior to printing, and the last label to feed forward to its rest position. To stop printing, pause the printer and press the CANCEL key, or place the power switch in the Off (O) position. See Figure 3-5 for a sample label.

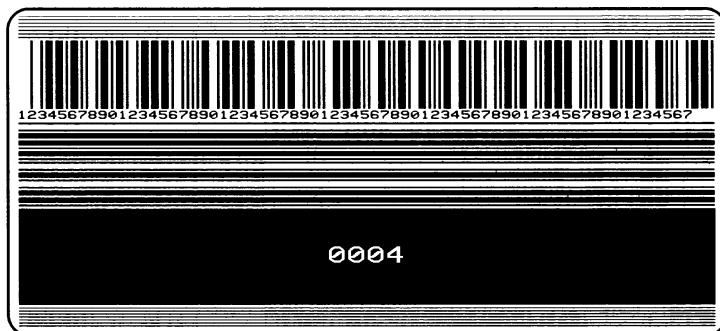


Figure 3-5. PAUSE Key Loopback Test Sample Label

FEED Key and CANCEL Key Self Test

This self test is normally performed during the manufacturing process or after a major overhaul of the mechanical assemblies. This test prints seven sets of pre-programmed label formats at speeds of 6" and 2" per second. The printer pauses after each set of label formats. The sequence of label formats is shown in Table 3-1. Refer to Figure 3-7 through 3-13 for sample labels.

Table 3-1. Format Sequence

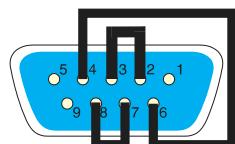
FORMAT	PRINTING	TEST FUNCTION
1	20 at 6 ips	Left Ribbon Wrinkle Test
2	20 at 6 ips	Right Ribbon Wrinkle Test
3	20 at 6 ips	Bar Code Wrinkle Test (Code-39)
4	20 at 2 ips	Left Ribbon Wrinkle Test
5	20 at 2 ips	Right Ribbon Wrinkle Test
6	20 at 2 ips	Bar Code Wrinkle Test (Code-39)
7	10 at 6 ips	Usable Area Test
8	10 at 6 ips	Head Temperature Test
9	10 at 6 ips	Upper Smear Test
10	10 at 6 ips	Lower Smear Test
11	10 at 2 ips	Usable Area Test
12	10 at 2 ips	Head Temperature Test
13	10 at 2 ips	Upper Smear Test
14	10 at 2 ips	Lower Smear Test

EXTENDED PRINTER DIAGNOSTICS

Additional diagnostic tests are available for printhead assembly adjustments. These diagnostic tests are only accessible when the data interface cable is disconnected from the printer and a loopback connector is attached in its place.

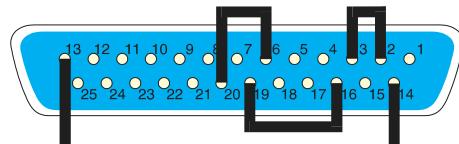
The serial loopback connector is a 25-pin or 9-pin "D" Type Male with the following pins tied together:

DB-9 Connector (Solder Side)



- Pins 2 and 3
- Pins 4 and 6
- Pins 7 and 8

DB-25 Connector (Solder Side)



- Pins 2 and 3
- Pins 6 and 20
- Pins 13 and 14
- Pins 16 and 19

The parallel loopback connector is a standard 36-pin parallel connector mounted to a small printed circuit board. This connector is available from Zebra Technologies as part # 44681.

For each of these diagnostic tests, the printer "transmits" the test label format out of the data interface connector to the loopback connector. The loopback connector passes the test label format to the printer as "received data" and the test label is printed.

PAUSE Key Loopback Test

This test demonstrates the media movement capabilities of the printer and provides a test label to view while making print quality adjustments.

With the loopback connector in place, press the PAUSE key while turning the power switch ON.

After the Power-On Self Test, the printer prints 500 head test labels. Each series of labels backfeeds prior to printing and feeds to the rest position after printing if the printer is PAUSED and the PAUSE key is pressed.

A serialized number prints on each label for label comparison purposes if required. See label example in Figure 3-6. The PAUSE key can be used to stop and restart the printing operation.

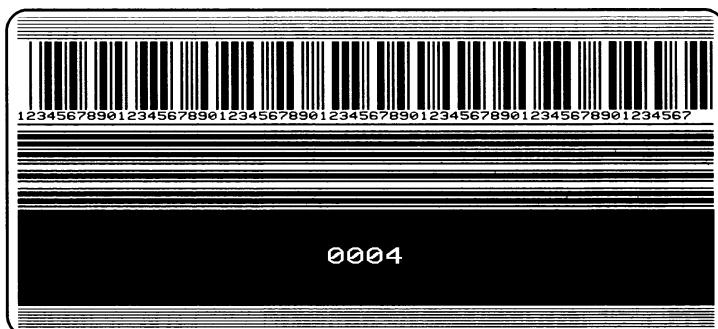


Figure 3-6. PAUSE Key Loopback Test Sample Label

FEED Key Loopback Test

With the loopback connector in place, press the FEED key while turning the power switch ON.

After the Power-On Self Test, the printer begins printing the same series of label formats as shown in Table 3-1 for FEED key/CANCEL key test. The printer pauses at the end of each series of labels. Press the PAUSE key to begin printing the next format. Sample labels are shown in Figure 3-7 through 3-13.

The PAUSE key can be used to stop and restart the printing operation. When the printer is paused, the CANCEL key can be used to move to the next label format.

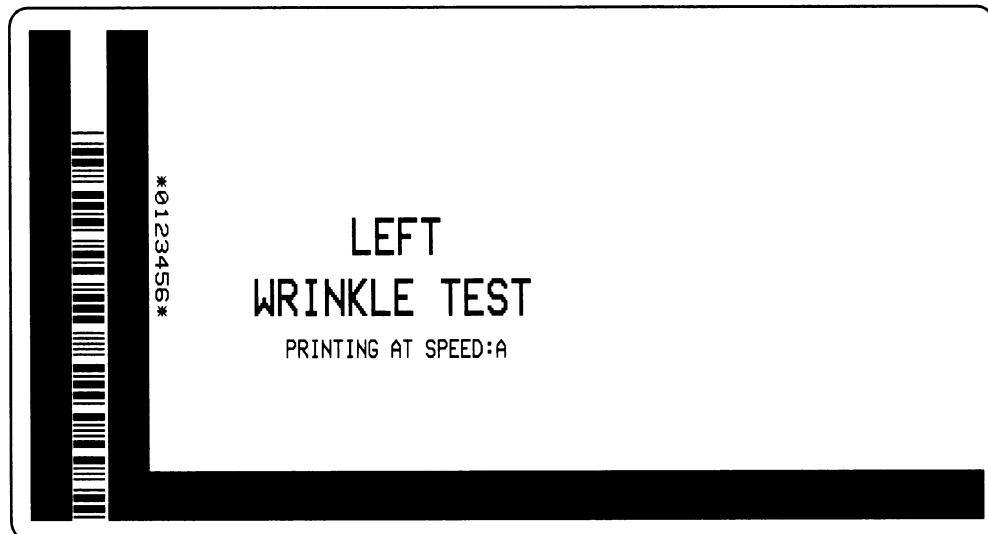


Figure 3-7. Format 1 and 4 Test Sample Label

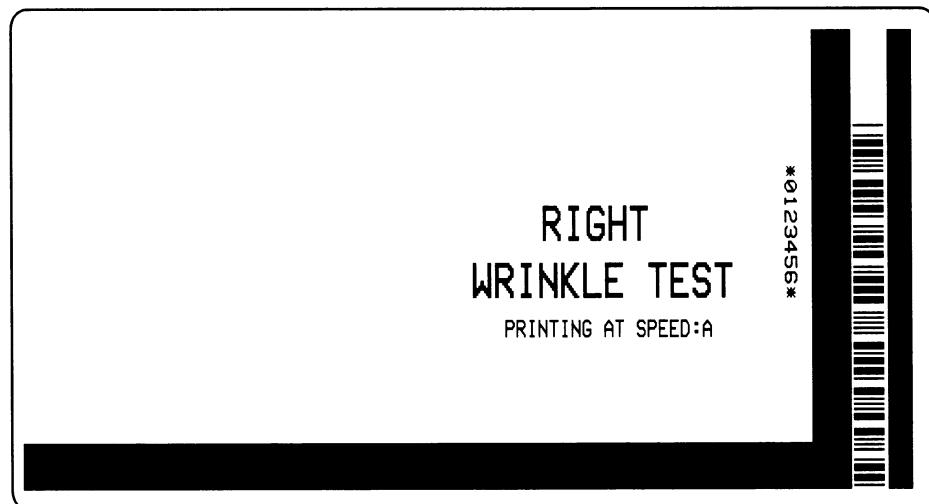


Figure 3-8. Format 2 and 5 Test Sample Label

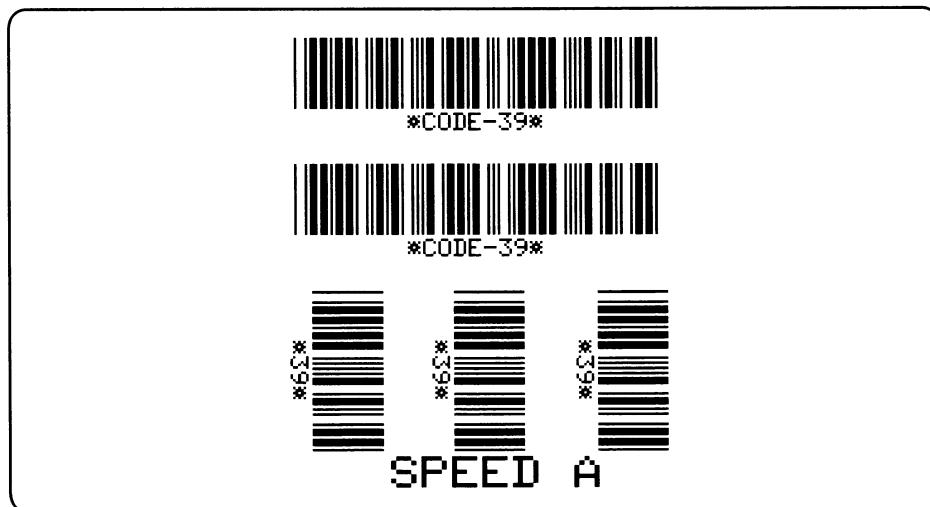


Figure 3-9. Format 3 and 6 Test Sample Label

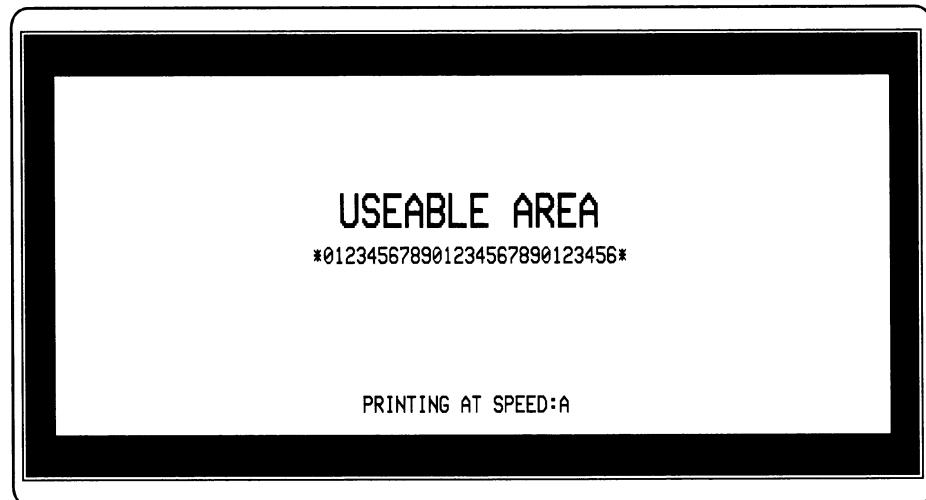


Figure 3-10. Format 7 and 11 Test Sample Label

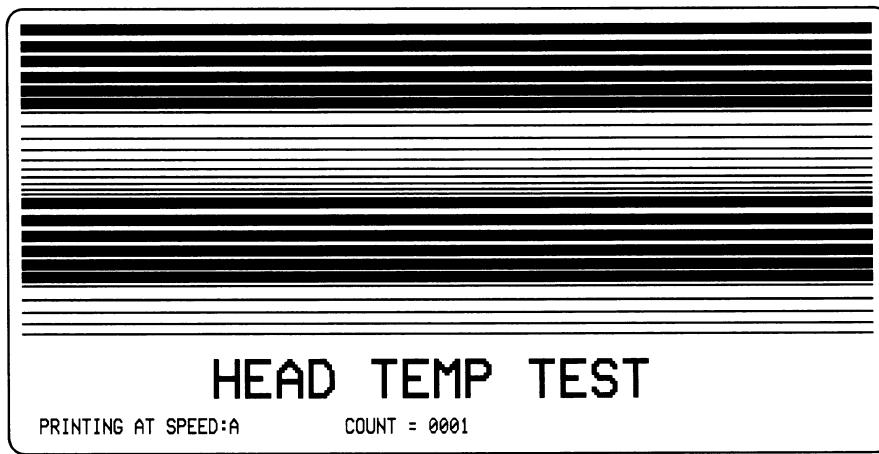


Figure 3-11. Format 8 and 12 Test Sample Label

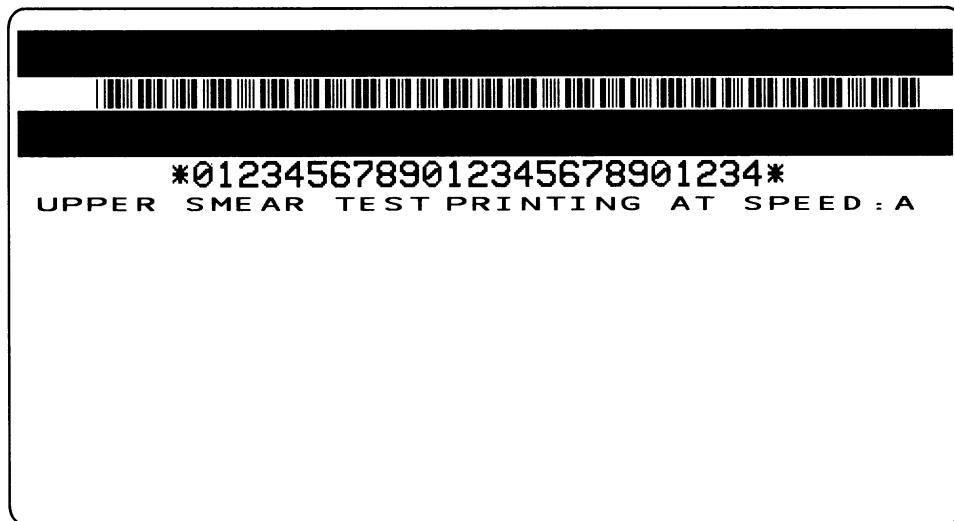


Figure 3-12. Format 9 and 13 Test Sample Label

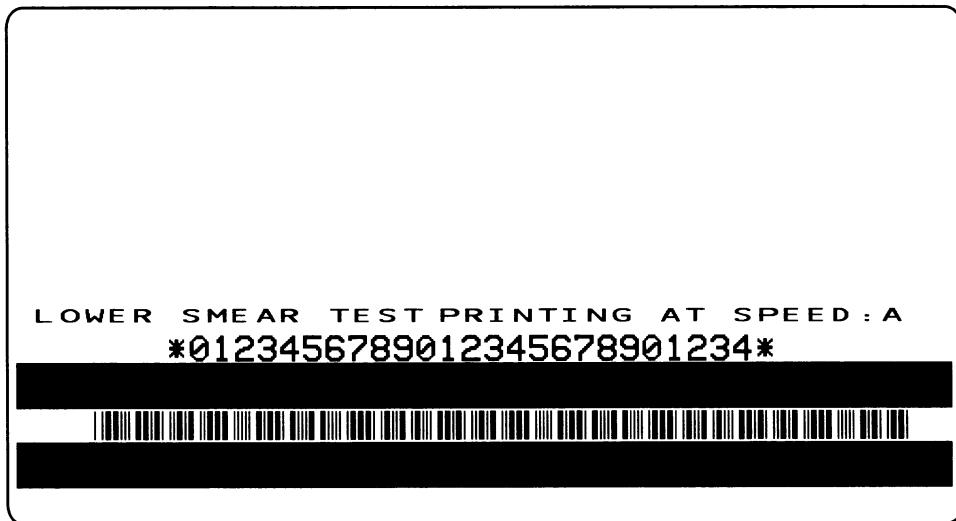


Figure 3-13. Format 10 and 14 Test Sample Label

Basic Troubleshooting

Refer to Table 3-2 and compare the printer output to the sample label to improve the quality of your labels.

Table 3-2. Troubleshooting

SYMPTOM	DIAGNOSIS	ACTION
Printer is dead. No LEDs light and no display.	AC power source not live.	Plug power cord into a live AC source.
	Power cord not fully inserted into power source or power entry module.	Make sure that power cord is fully inserted into the AC receptacle and the power entry module.
	AC fuse blown.	Replace AC fuse.
	Power supply faulty.	Replace power supply.
	Main logic board failure.	Replace main logic board.

Table 3-2. Troubleshooting (Continued)

SYMPTOM	DIAGNOSIS	ACTION
All LEDs light, but nothing displays on LCD and printer does not operate.	Main logic board or Flash faulty.	Download new Flash or replace the main logic board.
All LEDs flash on and off.	No significant amount of DRAM tested good.	Replace the main logic board.
Take Label LED flashing.	Printer misconfigured for Peel-Off Mode.	If peel-off is desired, check take label sensor.
Printer locks up while running Power-On Self Test.	Main logic board failure.	Replace main logic board.
EEPROM CHECKSUM INVALID	EEPROM checksum is incorrect.	Replace the main logic board.
ERROR CONDITION PAPER OUT Printer stops and ERROR LED flashes.	No media loaded or incorrectly loaded.	Load media correctly.
	Misadjusted media sensor.	Check media sensor position and sensitivity.
	Maximum label length set shorter than label length.	Verify maximum label length setting is correct.
	Printer set for non-continuous media, but continuous media is loaded.	Install proper media or reset printer for current media type.
ERROR CONDITION RIBBON OUT Printer stops and ERROR LED flashes.	For Thermal Transfer: Ribbon not loaded or incorrectly loaded. or Ribbon sensor not sensing ribbon that is correctly loaded.	1. Load ribbon correctly. 2. Ensure snap plate is properly installed. 3. Perform media and ribbon sensor calibration.
WARNING RIBBON IN	For Direct Thermal: Ribbon loaded unnecessarily.	Remove ribbon. Verify snap plate is properly installed.
ERROR CONDITION HEAD OPEN Printer stops and ERROR LED flashes.	Printhead is not fully closed.	Close printhead completely.
	Head open sensor not detecting position flag, or flag not in the proper position.	Check head open sensor and flag for proper operation.
WARNING HEAD TOO HOT	Printhead element is overheated.	Printer resumes printing when the printhead element cools to a normal operating temperature.

Table 3-2. Troubleshooting (Continued)

SYMPTOM	DIAGNOSIS	ACTION
WARNING HEAD COLD	Printhead element is not hot enough to print properly. Printhead data cable not properly connected.	Environment too cold for proper printing. Relocate printer to warmer area.  WARNING: The printhead can be very hot and can cause severe burns. Allow the printhead to cool. Disconnect and reconnect data cable to the printhead. Ensure that the cable connector is fully inserted into the printhead connector.
ERROR CONDITION CUTTER JAMMED	The cutter blade is in the media path.	Turn the power OFF. Remove the media, reload the media and turn power ON. If the error condition still exists, check cutter sensors and control board. Replace if necessary.
Printer stops and PAUSE LED lights. LCD displays: OUT OF MEMORY XXXXX XXXXX	Not enough memory to perform the function indicated in the second line of the display. It is possible that the printer is configured for continuous label stock with the maximum label length set too long. Functions: 1. Creating a bitmap — bitmap size is larger than the label length/width specified. 2. Storing a bitmap — not enough memory available to store the bitmap created. 3. Building a format — label is too complex. 4. Storing a format — format size is too large to fit in available memory. 5. Storing a graphic — graphic image is too large to fit in the available memory. 6. Storing a font — not enough memory to store the font.	You may do any of the following: A. STORING ERRORS - With PAUSE ON, use the ~HM ZPL II command to display the amount of memory available. Then redesign the graphic/format to fit in the available memory or remove items from memory to create more space. Or Press PAUSE to skip that step in the process and continue to the next step. B. With PAUSE ON, press CANCEL and the printer skips that label formatting process and continues to the next label format. C. Turn power OFF to clear printer memory and start all over again.

Table 3-2. Troubleshooting (Continued)

SYMPTOM	DIAGNOSIS	ACTION
Poor Print Quality.	Darkness set too low.	Reconfigure darkness setting.
	Incorrect media and ribbon.	Replace media and ribbon.
	Printhead just replaced.	Ensure printhead is installed properly with no wires or debris caught underneath.
	Printhead adjustments incorrect.	Perform required adjustments.
	Printhead resistance not configured to proper value.	Reconfigure printhead resistance.
Truncated print, no print, or feed button operates incorrectly while using non-continuous media.	Maximum label length parameter set less than the actual label length.	Set the correct label length.
	Printer, that is in rewind or peel-off mode, was powered on without media or backing around the rewind spindle.	Load media correctly for rewind or peel-off mode.
Long tracks of missing print on several labels.	Wrinkled ribbon.	See wrinkled ribbon in this table.
	Print element damaged.	Replace printhead.
Fine gray lines on blank labels at angles.	Wrinkled ribbon.	See Wrinkled Ribbon in this table.
Wrinkled ribbon.	Ribbon fed through machine incorrectly.	Load ribbon correctly.
	Incorrect darkness setting.	Set darkness to the lowest setting possible for good print quality.
	Incorrect printhead pressure or balance.	Set the pressure to the minimum needed. Refer to the printhead balance adjustment and printhead pressure adjustment procedures.
	Media not feeding properly; it is walking from side to side.	Make sure the media is snug by adjusting the media guide.
	Strip plate needs adjusting.	Perform adjustments.
	Ribbon supply spindle tension needs adjusting.	Perform adjustments.
	Printhead needs realigning with platen roller.	Perform adjustments.
	Ribbon take-up spindle tension needs adjusting.	Perform adjustments.
	Three point mount for ribbon supply spindle needs adjusting.	Perform adjustments.
	Ribbon supply core slipping; spindle blades need adjusting.	Perform adjustments.
Light printing or no printing on the left or right side of the label.	Printhead needs balancing.	Adjust balance. See printhead balance adjustment procedures.

Table 3-2. Troubleshooting (Continued)

SYMPTOM	DIAGNOSIS	ACTION
Misregistration/skips labels.	Improper sensor type selected.	Select proper sensor type through front panel programming.
	Misadjusted media sensors.	Adjust media sensors.
	Improper spindle tensions.	Check and adjust spindle tension if necessary.
	Improper ZPL format.	Correct ZPL format.
Misregistration and misprint of 1 to 3 labels.	Media was pulled when motor was not moving.	Open and close the printhead so it calibrates to find the label length.
	Printer that is in rewind or peel-off mode was powered ON without media or backing around rewind spindle.	Load media correctly for rewind or peel-off mode.
	Misadjusted media sensor.	Place media sensor in proper position.
Vertical drift in top-of-form registration.	A plus or minus 1 mm vertical drift is allowable due to the tolerances of the mechanical parts and printer modes.	Use top position setting to reposition the top-of-form. Calibrate if excessive.
Label jam in rear area of the printhead.	Upper media plate (snap plate) needs cleaning.	Clean upper media plate (snap plate).
Print label feeds out and then backfeeds immediately resting under the printhead.	Printer set for cutter mode with no cutter installed.	Set correct print mode.
Changes in parameter settings did not take effect.	Parameters are set incorrectly.	Cycle the power. Reload factory defaults. Then, set parameters and save permanently.
	If problem continues, there may be a problem with main logic board.	Replace the main logic board.
Missing LCD characters or parts of characters.	LCD may need replacing.	Run the Power-On Self Test and confirm that LCD display is showing all characters.
ZPL was sent to printer, but not recognized. Buffer light remains ON or flashes.	Communications parameters are incorrect.	Print a communications diagnostic label. Check for format or overrun errors. Reset communication parameters.
	Prefix and delimiter characters set in printer do not match the ones used in ZPL.	Set the characters in the printer to match ZPL format. If problem continues, check the ZPL format for changed ^CC, ^CT, and ^CD.
	Zebra protocol is on.	Set protocol = none.

TECH TIPS AND PROCEDURES

Factory Assistance

Should any problem be encountered which cannot be corrected with the aid of this manual, immediately contact your distributor or the Zebra Technical Support department to minimize downtime and/or assist in returning the equipment.

Returning Equipment

Should it become necessary to ship your 105SL printer, carefully pack it in a suitable container to avoid damage during transit. A note describing the failure must be enclosed with the unit. Whenever possible, the original shipping container should be used. If the original shipping container is not available, a replacement can be ordered by contacting the Technical Support department. If other containers are used, a procedure similar to the original factory packaging should be followed.

Remove all media and ribbon from the printer. Enclose the unit in a protective, dust-proof bag and ensure that the unit floats in an outer carton of shock absorbing material.

A Return Materials Authorization (RMA) number is required for all equipment being returned. Contact Zebra Technologies Corporation's Technical Support department to obtain an RMA number. Equipment returned for service without prior authorization may be refused.

CAUTION:



BEFORE PACKING THE PRINTER, REMOVE ANY RIBBON AND PAPER ROLLS FROM THE MEDIA COMPARTMENT. DO NOT PACKAGE THE PRINTER IN A RIGID CONTAINER WITHOUT UTILIZING SHOCK MOUNTS OR SHOCK-ABSORBING PACKING MATERIAL. A RIGID CONTAINER WILL ALLOW SHOCK ON THE OUTSIDE TO BE TRANSMITTED TO THE UNIT AND MAY CAUSE DAMAGE.

SECTION 4

PREVENTIVE AND CORRECTIVE MAINTENANCE

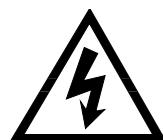
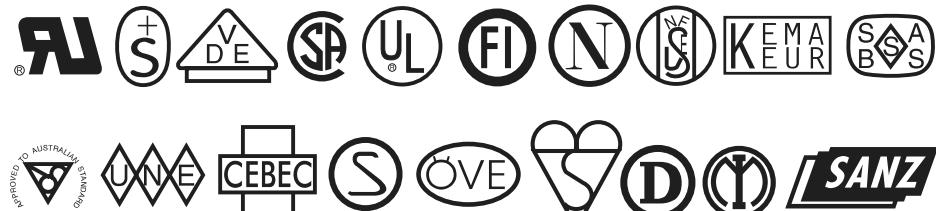
SAFETY INFORMATION

EQUIPMENT SAFETY TIPS



After reviewing each procedure, place a check in the box.

- The AC power plug and IEC 320 connectors on all Zebra Printers must bear the certification mark of at least one of the international safety organizations listed below.



- Unless indicated otherwise, turn the power OFF before performing any maintenance procedures to the printer. Disconnect the AC power cord from the power source.
- Zebra printers comply with international regulations governing radiated emissions when using fully shielded data cables. Data cables must be fully shielded and fitted with metal or metalized connector shells. Required shielded data cables and connectors prevent radiation and reception of electrical noise. Use of unshielded data cables may increase radiated emissions above the regulated limits.



- Permanent damage to the Flash Memory will result if you power up the printer with Flash Memory chips installed in the wrong direction.

EQUIPMENT SAFETY TIPS (Continued)

- To ensure that static-sensitive devices such as printhead and printed circuit boards are not damaged during disassembly and reassembly, observe proper electrostatic safety precautions when handling these components.
- Zebra recommends using solvent containing 70% isopropyl alcohol and 30% distilled water for cleaning of:
 - Printheads
 - Platen Rollers
 - Peel-Off Roller
 - Media Path
 - Peel/Tear Bar
 - Spindles
- Ribbons used in the printers must be as wide as or wider than the media. If the ribbon is narrower than the media, areas of the printhead will be unprotected and subject to premature wear.
- To ensure the printer has proper ventilation and cooling, do not place any padding or cushioning material under the unit because this restricts airflow.
- Install Zebra printers on a solid, level surface of sufficient size and strength to accommodate the physical dimensions and weight of the unit. The area enclosure in which the printer will operate must meet the environmental conditions specified in the Maintenance Manual or User's Guide. Electrical power must be available and in close proximity to the printer.

PERSONAL SAFETY TIPS

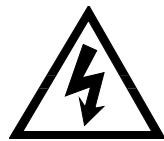
- Danger of an explosion exists if the back-up battery is replaced incorrectly.
- Do not wear any jewelry such as rings, watches, bracelets, etc. and loose clothing when servicing the printers.



- Beware of "Pinch Points" on the printers. Be especially careful of:
 - Opening and closing of covers
 - Opening and closing of the printhead
 - Rewind Spindle
 - Platen Roller



- Wear protective eye wear when removing E-Rings, C-Clips and springs.



- For personnel and equipment safety, use a three-prong plug with a ground (earth) connection.

MAINTENANCE CONCEPTS

This section of the maintenance manual is divided into two basic categories: preventive maintenance and corrective maintenance.

Preventive maintenance procedures may be performed by the operator as well as the service technician and should be performed on a regular basis. Preventive maintenance consists of a visual inspection and general cleaning of the interior and exterior of the printer. Preventive maintenance also includes cleaning the printhead and the associated media and ribbon paths.

Corrective maintenance provides procedures for resolving faults by adjustment or replacement of components or modules. These procedures are provided specifically for service technicians.

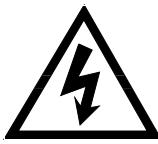
PREVENTIVE MAINTENANCE

Cleaning the Zebra 105SL Printer

Refer to Table 4-1 and perform the preventive maintenance procedures at the prescribed interval.

Table 4-1. Recommended Preventive Maintenance Schedule

AREA	METHOD	INTERVAL
Printhead	Solvent	
Platen Roller	Solvent	
Transmissive Media Sensor	Air blow	
Reflective (black mark) Sensor	Air blow	
Media Path	Solvent	
Tear-Off/Peel-off Bar	Solvent	As needed.
Snap Plate	Solvent	As needed.
Take-Label (Label Available) Sensors	Air blow	Monthly.
Ribbon Sensor	Air blow	After every roll.
Ribbon Feeding	Visual inspection	After every roll.
Belts	Visual inspection: Look for belt wear.	6 months or after every 500 rolls.
Media Supply Hanger	Formal preventive maintenance is not required.	
Media Take-Up Spindle	The spindle torque should be tested every year, or 500 rolls of media for the media take-up spindle; and every 200 rolls of ribbon for the ribbon supply and ribbon take-up spindles.	
Ribbon Supply Spindle		
Ribbon Take-Up Spindle	The felt washers need to be replaced when they have dried out or deteriorated. When they need to be replaced, the correct spindle torque cannot be achieved. The spindle torque need not be readjusted unless the printer is malfunctioning.	

**WARNING:**

UNLESS INDICATED OTHERWISE, TURN PRINTER POWER OFF AND DISCONNECT THE PRINTER FROM THE POWER SOURCE BEFORE PERFORMING THE FOLLOWING MAINTENANCE PROCEDURES.

**CAUTION:**

USE ONLY THE CLEANING AGENTS DESCRIBED IN THE FOLLOWING PROCEDURES. ZEBRA TECHNOLOGIES WILL NOT BE RESPONSIBLE IF ANY OTHER FLUIDS ARE USED ON THIS PRINTER.

EXTERIOR: The exterior surfaces of the 105SL printer may be cleaned as required by using a lint-free cloth. DO NOT use solvents or harsh cleaning agents. If the unit is excessively dirty, a mild detergent solution or desktop cleaner may be used sparingly.

INTERIOR: As required, remove any dirt/lint accumulated in the interior of the printer using a soft bristle brush and/or vacuum cleaner. It is a good practice to inspect these areas after every fourth roll of media.

CLEANING SUPPLIES: A preventive maintenance kit (part # 01429) containing six cleaning swabs soaked in solvent (alcohol and distilled water) is available from Zebra Technologies Corporation.

**CAUTION:**

THE USE OF CERTAIN LUBRICANTS SUCH AS PENETRATING OIL AND SILICONE OIL WILL DAMAGE THE PRINTER'S SPINDLES AND INHIBIT PROPER OPERATION. DO NOT LUBRICATE ANY PARTS IN THIS PRINTER UNLESS CALLED FOR IN THE INSTALLATION AND ADJUSTMENT PROCEDURES.

Cleaning the Printhead

Inconsistent print quality such as voids in the bar codes or graphics may indicate a dirty printhead. For optimum performance, the printhead should be cleaned regularly. Zebra Technologies Corporation recommends performing the cleaning procedure when installing a new roll of ribbon, when installing a new roll of direct thermal media, or after having printed 500 feet of continuous or fanfold media.

It is not necessary to turn the printer power OFF prior to cleaning. If power is turned OFF, all label formats, images and parameter settings stored in the printer's formatting RAM memory will be lost. Permanent parameter settings stored in EEPROM are retained. When power is turned back ON, it may be necessary to reload some items into the printer's memory.

Use the following procedure to clean the printhead.

1. Refer to Figure 4-1. Rotate the printhead lever counterclockwise to open the printhead.
2. Remove the media and ribbon, if present.

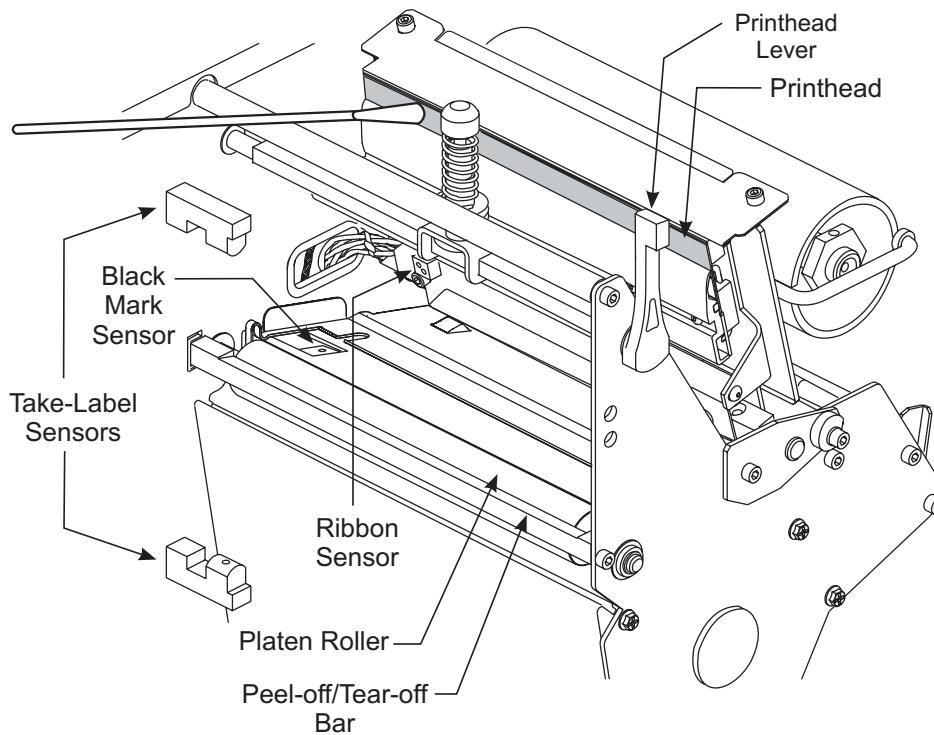


Figure 4-1. Cleaning a Typical Printhead

3. Use a cleaning swab and wipe the print elements from end to end. The print elements are the grayish/black strip just behind the chrome strip on the underside of the printhead. Allow a few seconds for the solvent to evaporate.
4. Rotate the platen roller and clean thoroughly with solvent and an applicator.
5. Brush or vacuum any accumulated paper lint and dust away from the rollers and the media and ribbon sensors.
6. Reload ribbon and/or media, close and latch the printhead, restore power, if necessary, and run the PAUSE Key Self Test to check print quality.

Cleaning the Upper Media Guide (Snap Plate)

Clean the snap plate to remove label adhesive or a label that has adhered to the underside of the snap plate.



CAUTION:

WHEN HANDLING THE SNAP PLATE USE CARE NOT TO BEND, TWIST OR DEFORM THE LOOPS. IF THE SNAP PLATE IS DAMAGED IT WILL NEED TO BE REPLACED.

1. Insert a small-blade screwdriver or similar tool into the loop on the left side of the snap plate. Lift the snap plate. See Figure 4-2.
2. Repeat step one on the right side of the snap plate.
3. Remove the snap plate from the printer.
4. Clean the snap plate with cleaning solvent and a soft cloth.

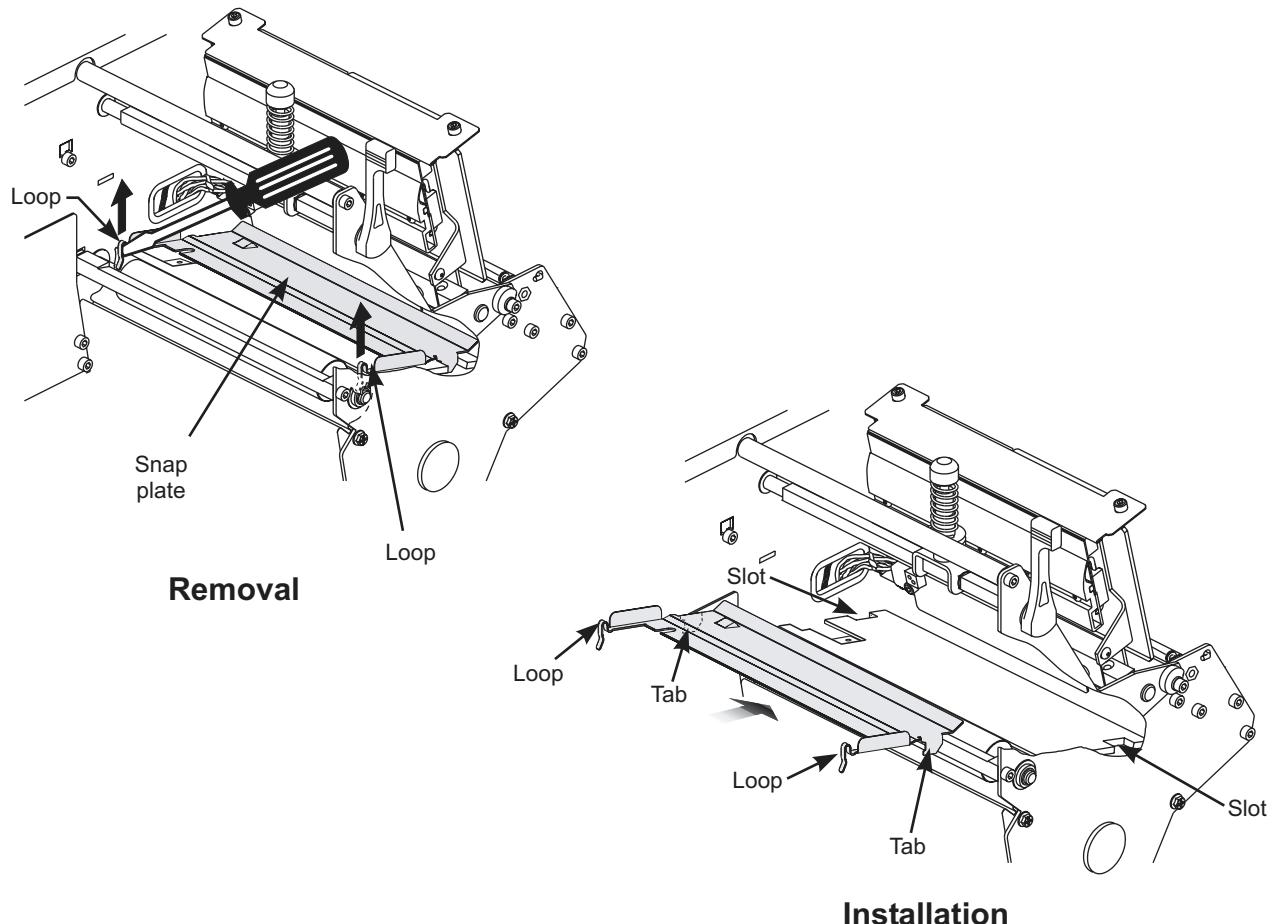


Figure 4-2. Removal and Installation of Snap Plate

5. To reinstall the snap plate, insert the two tabs on the bottom of the snap plate into the two slots of the media pathway.
6. Slide the snap plate toward you.
7. Press down on the loops to lock the snap plate into place.

CORRECTIVE MAINTENANCE

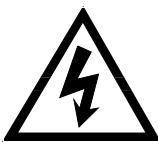
Tools Required for Corrective Maintenance:

In addition to a complete set of technician's tools consisting of flat-blade and Phillips screwdrivers, American standard and metric nut drivers, hex keys (Allen wrenches), combination wrenches, and wire cutters, two special tools are required:

- Spring scale, 0 – 2250 g (part # HT344)
- Spindle torque adjustment kit (part # 01773)

Test Equipment Required

- Multimeter and test leads
- Anti-static mat and anti-static wrist strap for removing PC board

**WARNING:**

UNLESS INDICATED OTHERWISE, TURN PRINTER POWER OFF AND DISCONNECT THE PRINTER FROM THE POWER SOURCE BEFORE PERFORMING THE FOLLOWING MAINTENANCE PROCEDURES.

Printer Parts and Locations

Differences in Printer Configurations

The printer identification label on the rear of the unit identifies the configuration of the printer. The format of the Configuration Number is as follows:

10500-1XXX-XXXX

This section of the manual covers all the variables of two major configurations. The significant differences between configurations are denoted by the first digit of the second group of numbers. If that digit is a zero (0) or one (1), the 105SL is equipped with a 25-pin serial interface connector, has a black main frame, and has separate AC and DC power supplies. If that digit is a two (2) or three (3), the 105SL is equipped with a 9-pin serial interface connector, has a silver main frame, and has an integrated AC/DC power supply.

External Components

Refer to Figure 4-3 to familiarize yourself with the external parts of the printer.

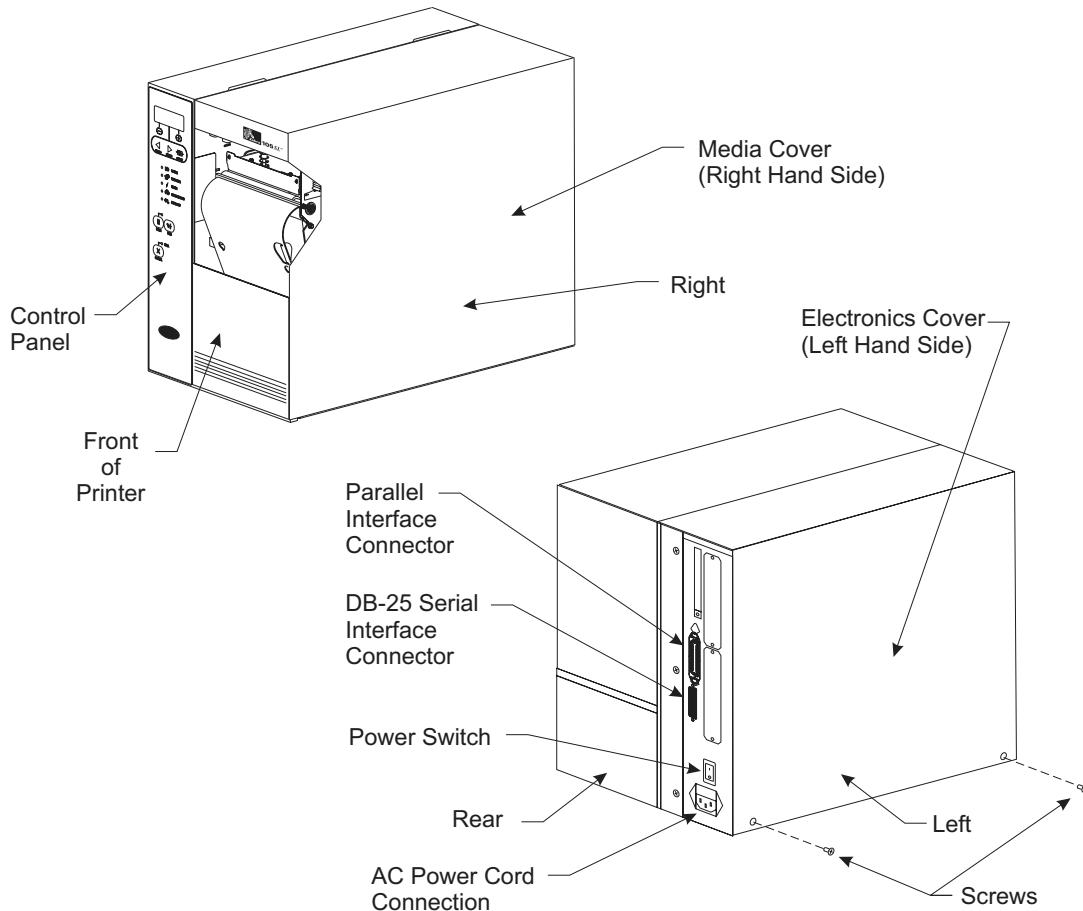


Figure 4-3. External Printer Components

Electrical Interconnections

Refer to Interconnection Diagram anytime you remove and replace circuit boards or disconnect and reconnect any electrical components.

Use Figure 4-4 for printer configurations 10500-0XXX-XXXX and 10500-1XXX-XXXX.
Use Figure 4-5 for printer configurations 10500-2XXX-XXXX and 10500-3XXX-XXXX.

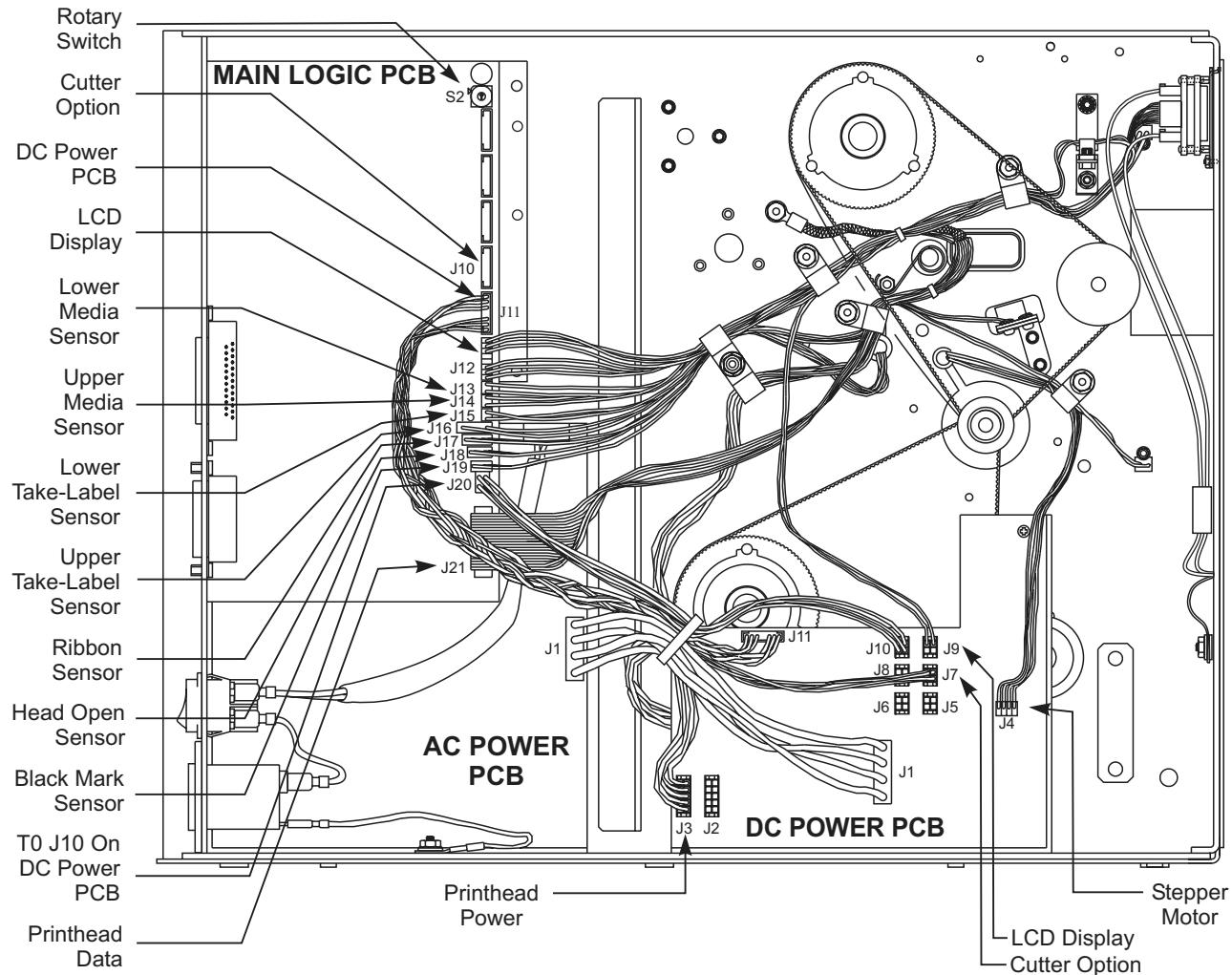


Figure 4-4. Interconnection Diagram for Printer Configurations 10500-0XXX-XXXX and 10500-1XXX-XXXX

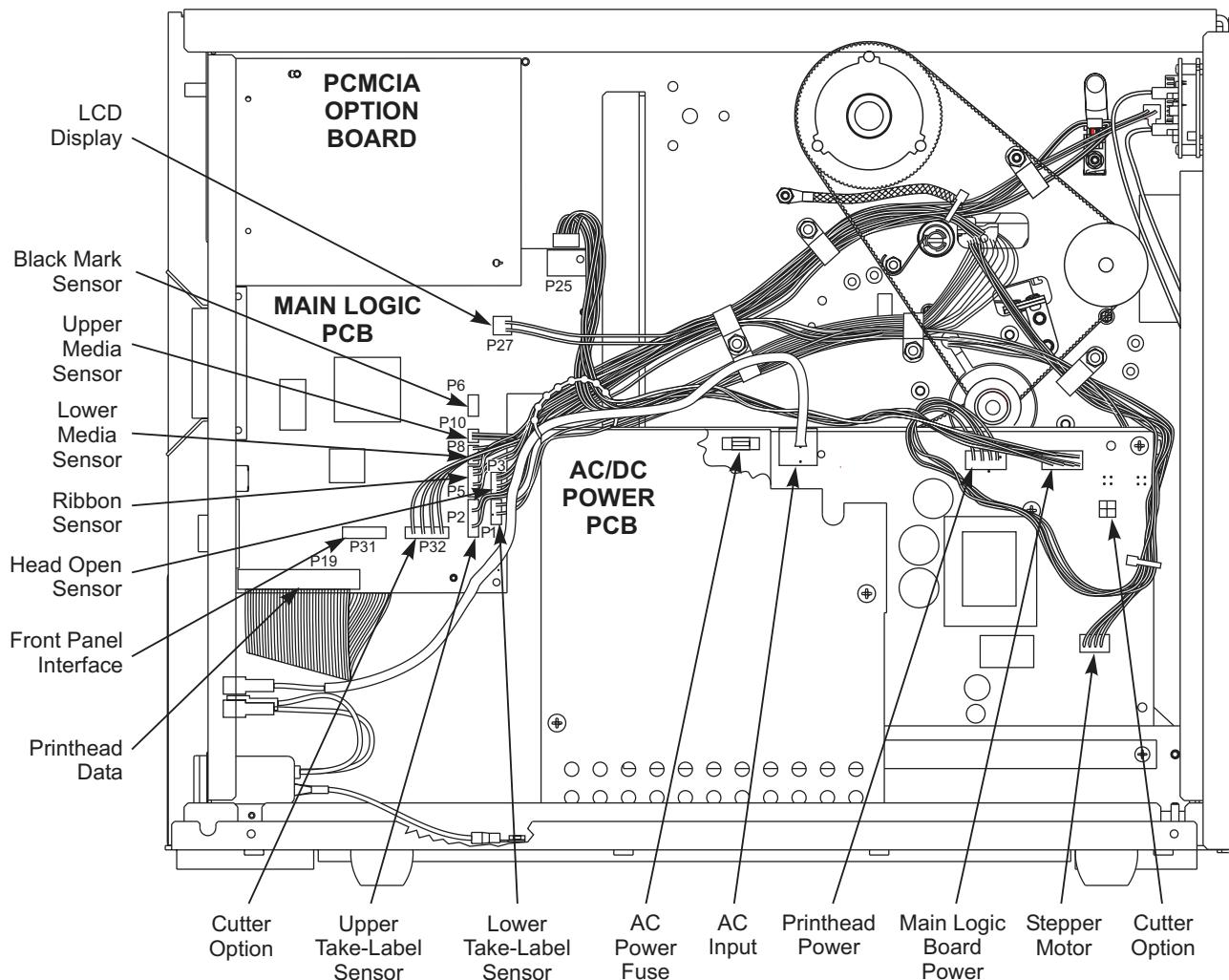


Figure 4-5. Interconnection Diagram for Printer Configurations 10500-2XXX-XXXX and 10500-3XXX-XXXX

Routine Referral Procedures (RRP)

Routine Referral Procedures are commonly used steps that are performed often during corrective maintenance. These procedures are referenced throughout this section of the manual.

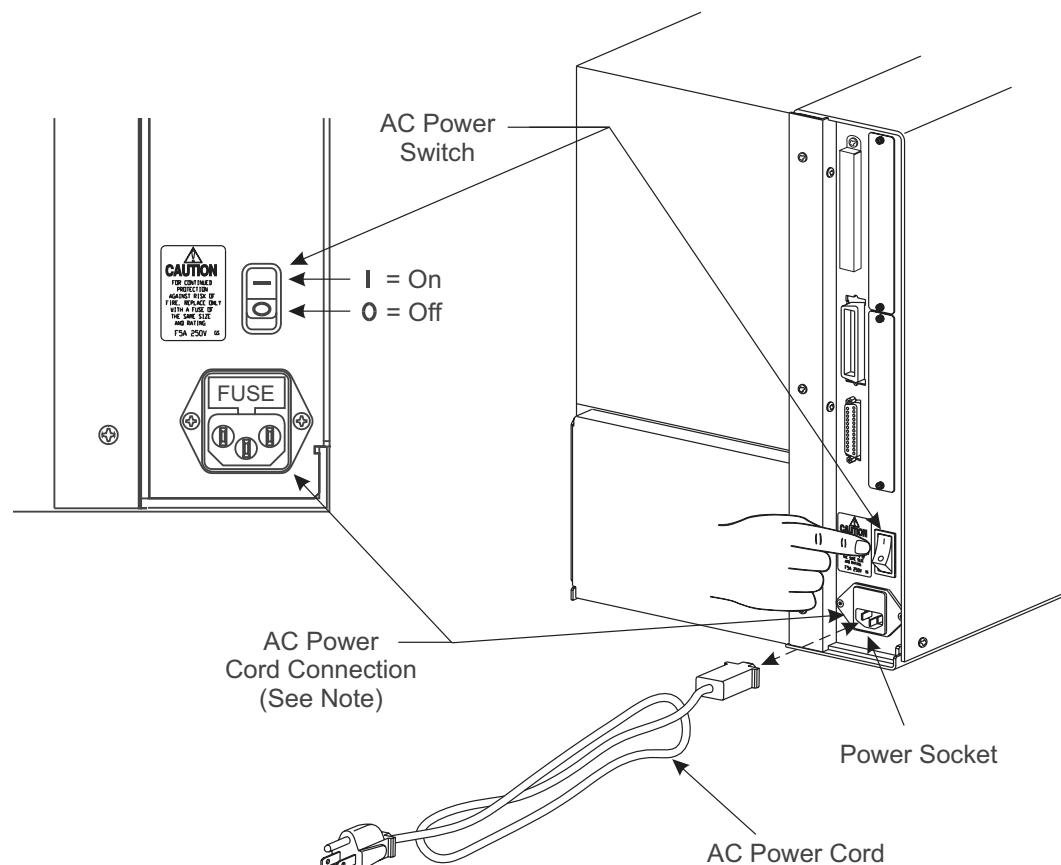
RRP No. 1: Preparing Printer for Maintenance

Removing Power and Disconnecting the Printer

Refer to Figure 4-6. Power switch position (I) is the On position. Switch position (O) is the Off position. Place the power switch in the Off (O) position.

Remove the power cord from the power source. Grasp the plug of the power cord and pull it straight away from the printer.

Refer to Figure 4-7. **Parallel Data Cable:** Pry off wire retainers from the parallel data cable connector. Pull the data cable connector away from the parallel data port connector. **Serial Data Cable:** Loosen the two screw fasteners from serial data cable connector and pull it away from serial data port connector. If there is an adapter connected to the serial data port, remove the adapter.



Note:
Depending on Configuration, the power entry module
may not have a user-replaceable fuse.

Figure 4-6. Power Switch and Power Cord Removal and Installation

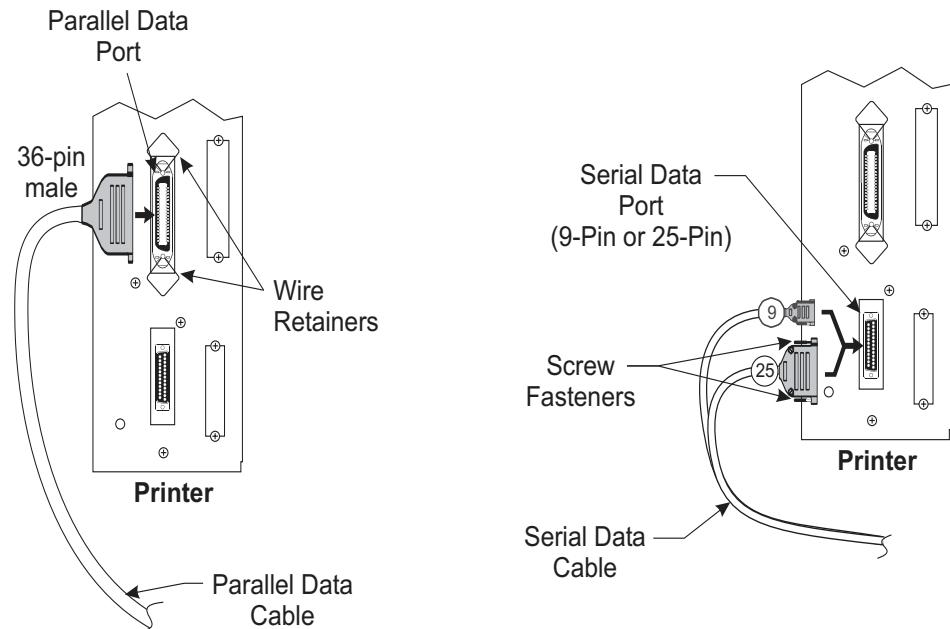


Figure 4-7. Removing and Installing Data Cables

Reconnecting and Powering the Printer

Parallel Data Cable: To install the parallel data cable, push the 36-pin parallel data cable male connector into the parallel data port connector. Firmly seat the connector. Secure the connector with the two wire retainers.

Serial Data Cable: If an adapter was connected to the serial data port, reinstall the adapter and secure it with the two screw fasteners. To install the serial data cable, push the serial data cable male connector into the serial data port connector or adapter. Firmly seat the connector. Secure the connector with the two screw fasteners.

To install the power cord, line up the female connector with the printer power socket and push the connector fully into the socket. Ensure that the power switch is in the Off (**O**) position and plug the power cord into a live AC outlet.

Place the power switch in the On (**I**) position.

RRP No. 2: Remove and Install the Electronics Cover

Refer to Figure 4-8. To remove the electronics cover, remove the two screws located near the bottom. Lift electronics cover at the rear top corner as shown and pull the corner forward and up. Lift the cover up and away from the printer.

To install the cover, be careful not to pinch your fingers, and lower the cover so the lip goes into the channel on the top of the printer.

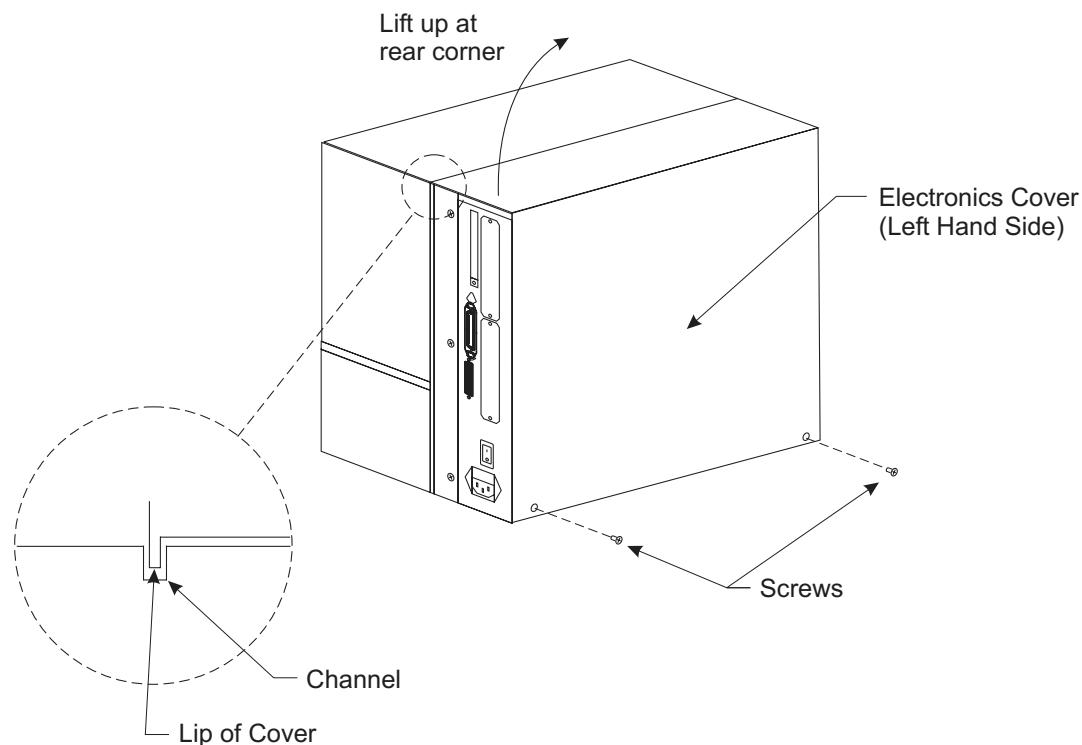


Figure 4-8. Removing and Installing the Electronics Cover

RRP No. 3: Remove and Install the DC Power Supply

NOTE: *This procedure is used only for printer configurations 10500-QXXX-XXXX and 10500-1XXX-XXXX.*

**CAUTION:**

OBSERVE PROPER ELECTROSTATIC SAFETY PRECAUTIONS WHEN HANDLING ANY STATIC-SENSITIVE COMPONENTS SUCH AS PRINTED CIRCUIT BOARDS AND PRINTHEADS.

To remove the DC power supply:

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (**O**) position and disconnect the AC power cord. Disconnect the data cables.
2. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
3. Refer to Figure 4-4. Unplug all ribbon cables and small wire connectors from the DC power supply board.
4. Refer to Figure 4-9. Remove one mounting screw and two hex nuts holding the DC power supply assembly to the printer chassis.
5. Remove the DC power supply assembly from the printer.

NOTE: *The black heat conduction pad MUST NOT be discarded.*

To install the DC power supply:

1. Refer to Figure 4-9. Position the cables out of the way while placing the DC power supply assembly into the printer. Ensure the heat conduction pad is in position.
2. Install the one mounting screw and two nuts that secure the DC power supply assembly.
3. Carefully connect all the ribbon cables and small wire cables to the correct connectors on the DC power supply board as shown in Figure 4-4.
4. Reinstall the electronics cover.
5. Reconnect the AC power cord and all data cables.
6. Hold in the PAUSE key while placing the power switch in the On (**I**) position. Observe the printer Power-On Self Test and examine the test labels for proper print quality. If necessary, refer to the User's Guide to adjust the darkness setting.

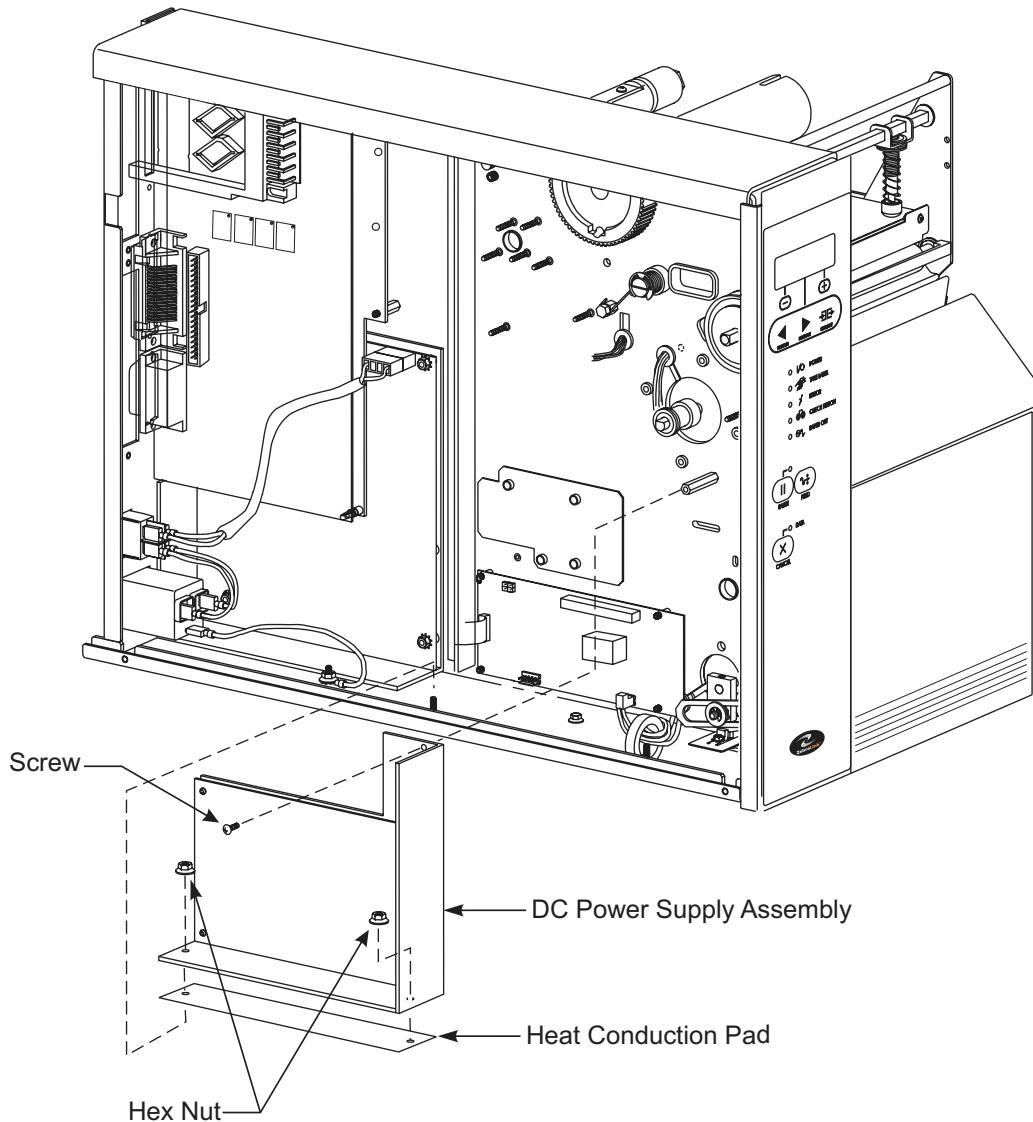


Figure 4-9. DC Power Supply Removal and Installation

RRP No. 4: Remove and Install the AC Power Supply

NOTE: *This procedure is used only for printer configurations
10500-0XXX-XXXX and 10500-1XXX-XXXX.*



CAUTION:

OBSERVE PROPER ELECTROSTATIC SAFETY PRECAUTIONS WHEN
HANDLING ANY STATIC-SENSITIVE COMPONENTS SUCH AS PRINTED
CIRCUIT BOARDS AND PRINTHEADS.

To remove the AC Power Supply:

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (**O**) position and disconnect the AC power cord. Disconnect the data cables.
2. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.

NOTE: *Retain all attaching hardware to use during reassembly.*

3. Refer to Figure 4-10. Remove the nut holding the ground lead from the power entry module to the printer chassis.

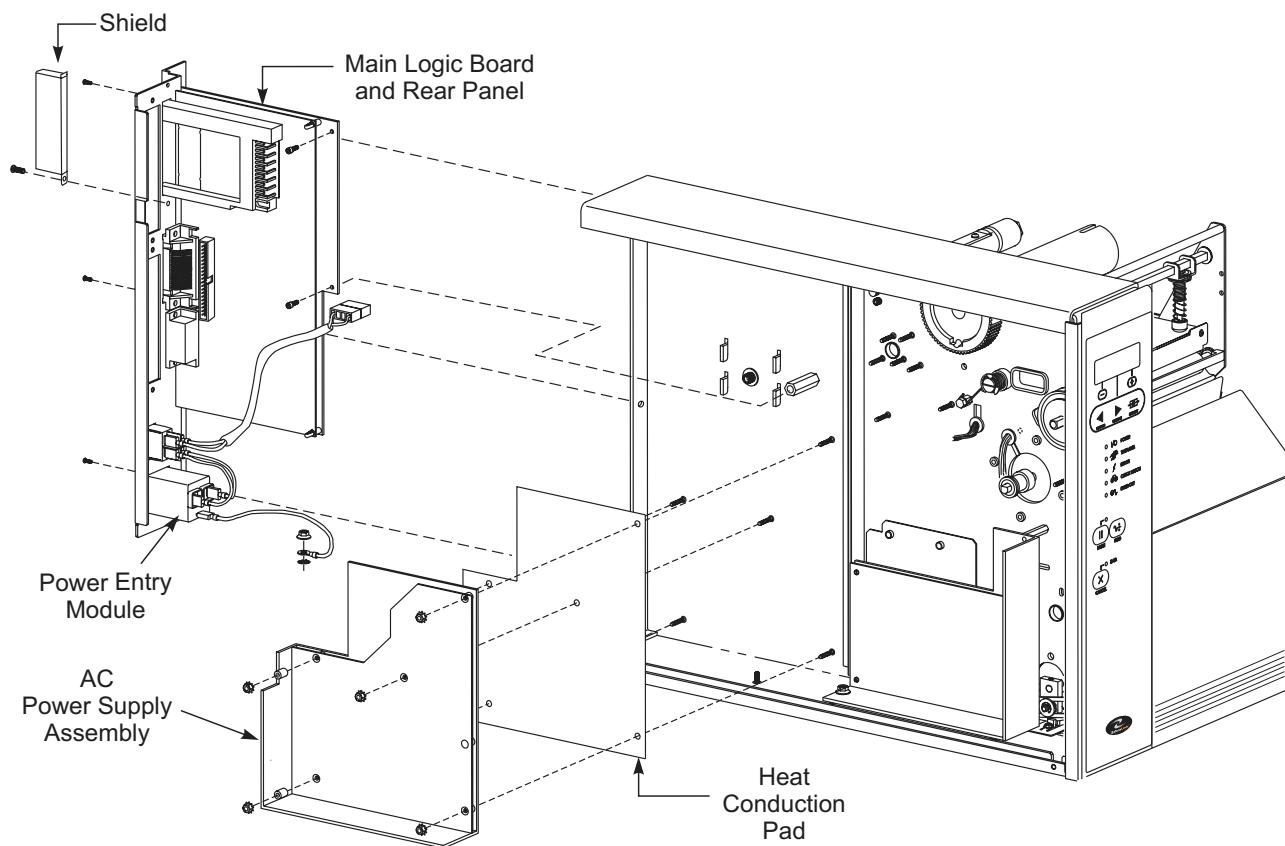


Figure 4-10. AC Power Supply and Main Logic Board Removal/Installation

4. Remove the connector from the AC power supply at J1.
5. Remove the three screws holding the back panel to the printer.
6. Remove the two screws holding the logic board and aluminum plate to the printer.

NOTE: *It is possible to remove the main logic board with all the connectors still attached. If you prefer to remove all cables and wires, refer to Figure 4-4.*

7. Slide the main logic board and rear panel assembly out and away from the printer.
8. Remove the connector from the AC power supply at J2.
9. Remove the five nuts and two spacers that hold the assembly against the threaded mounting posts and remove the AC power supply.

NOTE: *The black heat conduction pad MUST NOT be discarded. You might have to remove a hex head fastener in front of the board on the bottom.*

To install the AC Power Supply Assembly:

1. Ensure the heat conduction pad is in position. Position the cables out of the way while placing the new AC power supply assembly onto the five threaded mounting posts.

2. Reinstall the five nuts and two spacers that hold the AC power supply assembly against the printer chassis. Ensure the plastic spacers are installed on the two rear posts.
3. Reconnect the cable from the power switch to connector J2 on the AC power supply.
4. Slide the main logic board and rear panel assembly into the printer.
5. Reinstall the two screws at the top and center right hand corners of the metal mounting plate directly behind the main logic board.
6. At the rear of the printer, install the three screws that hold the rear panel to the back of the printer.
7. Reconnect the cable from the DC power supply to connector at J1 on the AC power supply.
8. Reattach the ground lead from the power entry module to the printer chassis and secure with the nut.
9. If you removed the connectors from the main logic board, refer to Figure 4-4 and reconnect them.
10. Reinstall the electronics cover.
11. Reconnect all data cables and AC power cord.
12. Connect the power cord to a live AC power source.
13. Hold in the PAUSE key while placing the power switch in the On (**I**) position. Observe the printer Power-On Self Test and examine the test labels for proper print quality.
14. If the printer does not make it through the Power-On Self Test, make sure that the interconnections were made properly and that all cables and wires were reconnected.

RRP No. 5: Remove and Install the Integrated AC/DC Power Supply

NOTE: *This procedure is used only for printer configurations
10500-2XXX-XXXX and 10500-3XXX-XXXX.*

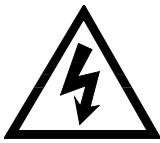
**CAUTION:**

OBSERVE PROPER ELECTROSTATIC SAFETY PRECAUTIONS WHEN
HANDLING ANY STATIC-SENSITIVE COMPONENTS SUCH AS PRINTED
CIRCUIT BOARDS AND PRINTHEADS.

To remove the AC/DC power supply:

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (**O**) position and disconnect the AC power cord. Disconnect the data cables.
2. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.

3. Disconnect the cable tie and remove it from the insulation shield.

**WARNING:**

CERTAIN COMPONENTS LOCATED UNDER THE INSULATION SHIELD CAN STORE A RESIDUAL CHARGE FOR AS LONG AS TEN MINUTES AFTER POWER HAS BEEN REMOVED. USE EXTREME CARE WHEN REMOVING THE POWER SUPPLY. HANDLE THE BOARD ONLY AROUND THE OUTER EDGES.

4. Refer to Figure 4-11. Remove and retain the two screws securing the insulation shield to the standoffs on the power supply. Carefully unwrap the top of the shield and remove it from the power supply.

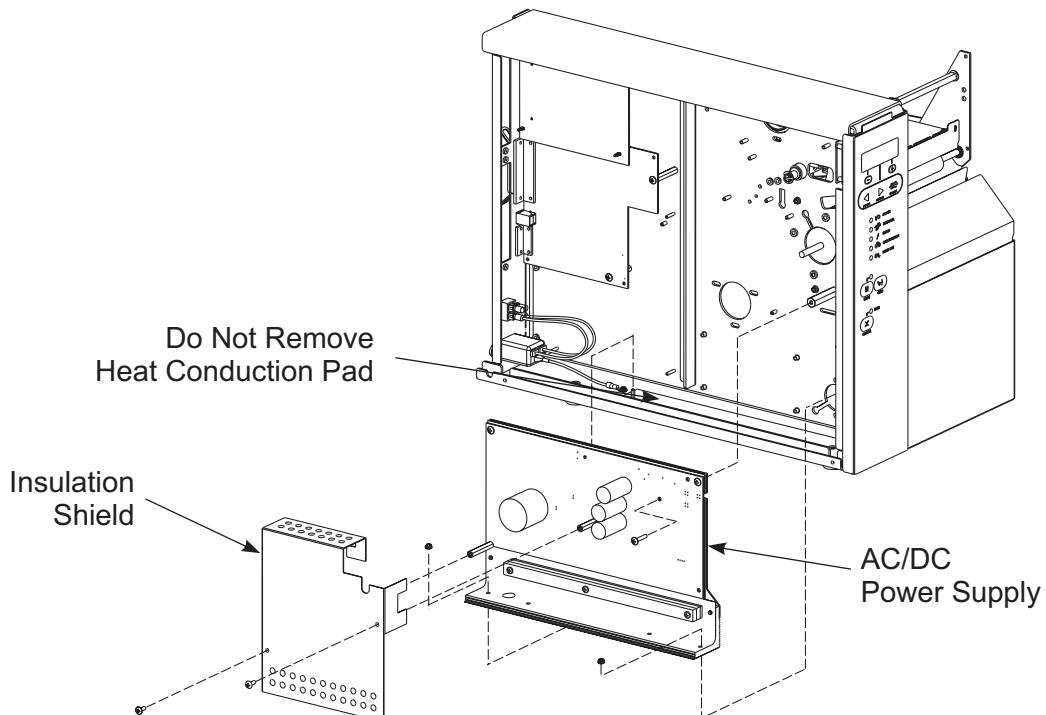


Figure 4-11. AC/DC Power Supply Removal and Installation

5. Refer to Figure 4-5. Unplug all connectors from the AC/DC power supply board.
6. Remove one mounting screw and two hex nuts holding the power supply assembly to the printer chassis.
7. Remove the power supply assembly from the printer.

NOTE: *The black heat conduction pad MUST NOT be discarded.*

To install the AC/DC power supply:

1. Refer to Figure 4-11. Position the cables out of the way while placing the AC/DC power supply assembly into the printer. Ensure the heat conduction pad is in position.
2. Install the one mounting screw and two nuts that secure the power supply assembly.

3. Carefully connect all the cables to the correct connectors on the power supply board as shown in Figure 4-5.
4. Reinstall the insulation shield, making sure the top is dressed properly. Secure the insulation shield to the standoffs on the power supply with two screws.
5. Dress the wire harnesses across the top of the insulation shield, and secure them with the cable wrap.
6. Reinstall the electronics cover.
7. Reconnect the AC power cord and all data cables.
8. Hold in the PAUSE key while placing the power switch in the On (I) position. Observe the printer Power-On Self Test and examine the test labels for proper print quality. If necessary, refer to the User's Guide to adjust the darkness setting.

RRP No. 6: Remove and Install the Main Logic Board (Printer Configurations 10500-0XXX-XXXX and 10500-1XXX-XXXX)

Refer to page 4-20 for printer configurations 10500-2XXX-XXXX and 10500-3XXX-XXXX.



CAUTION:

OBSERVE PROPER ELECTROSTATIC SAFETY PRECAUTIONS WHEN HANDLING ANY STATIC-SENSITIVE COMPONENTS SUCH AS PRINTED CIRCUIT BOARDS AND PRINTHEADS.

To remove the main logic board:

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (O) position and disconnect the AC power cord. Disconnect the data cables.
2. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.

NOTE: *Retain all attaching hardware to use during reassembly.*

3. Refer to Figure 4-12. Remove the option card shield if installed. Press the card release the button to remove the PCMCIA card from the card slot located at the rear of the printer.
4. Remove the optional interface board if installed.
5. Refer to Figure 4-5. Disconnect all ribbon cables and wire connectors from the main logic board.
6. Refer to Figure 4-12. At the rear of the printer, remove the two screws and the two studs with their washers holding the serial and parallel interface connectors to the back of the printer.
7. Remove the three screws holding the back panel to the printer.
8. Remove the hex nut holding the ground lead from the power entry module to the printer chassis.
9. Slide the main logic board and rear panel assembly out and away from the printer.
10. Remove the main logic board from the metal plate by squeezing the tips of two plastic stand-offs at the top and bottom right hand corners of the board.

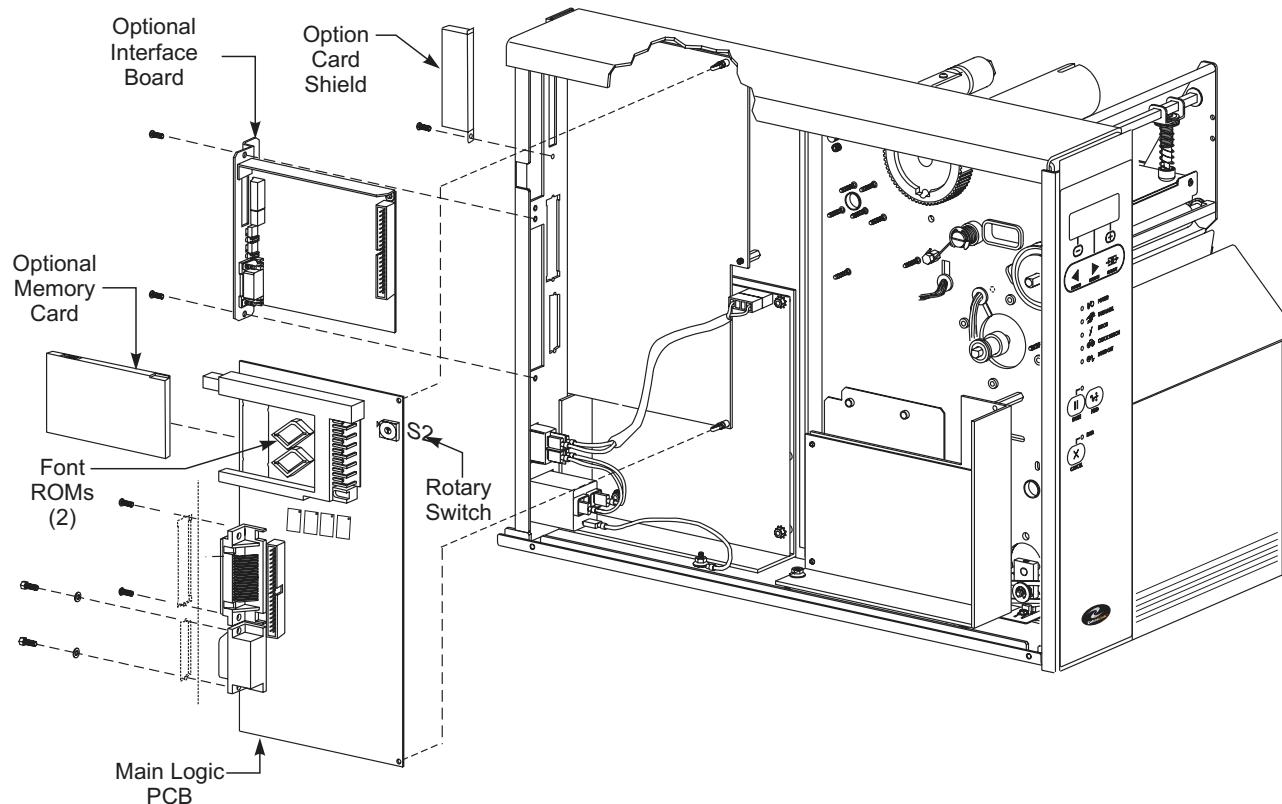


Figure 4-12. Main Logic Board Removal and Installation (Printer Configurations 10500-0XXX-XXXX and 10500-1XXX-XXXX)

11. Flash memory is installed on the main logic board. The latest software can be downloaded from Zebra Technologies' web site: www.zebra.com.

To install the main logic board:

NOTE: *If a replacement main logic board is being installed, switch S2 must be set to the proper position for your printer. Use position C for 200 dpi printers or position D for 300 dpi printers. Take note of the position of S2 on the old board and set the switch on the replacement board to the same position.*

If you are unsure how S2 was set on the old main logic board, you can determine the resolution of the printer by the printhead label or the configuration label.

If your printhead label has a number similar to: KPA-106-12TAF5-ZB2
the "12" signifies 12 dots/mm or 300 dpi. S2 must be set to position D.

If your printhead label has a number similar to: KPA-106-8TAF5-ZB2
the "8" signifies 8 dots/mm or 203 dpi. S2 must be set to position C.

Or, on the printer identification label on the back of the printer:

If your configuration number reads:

10500-1000-0000, the "1" signifies 12 dots/mm or 300 dpi. S2 must be set to position D.

10500-0000-0000, the "0" signifies 8 dots/mm or 203 dpi. S2 must be set to position C.

1. Refer to Figure 4-12. Position the cables out of the way. Place the main logic board onto the plastic stand-offs attached to the aluminum mounting plate at the top and bottom right hand corners of the board.
2. At the rear of the printer, install the two screws and two hex head studs with their washers that hold the serial and parallel data connectors to the back of the printer.
3. Slide the main logic board and rear panel assembly into the printer.
4. Reinstall the two screws at the top and center right hand corner of the metal mounting plate directly behind the main logic board.
5. At the rear of the printer, install the three screws that hold the rear panel to the printer.
6. Refer to Figure 4-4. Carefully reconnect all the ribbon cables and wire connections to the connectors on the main logic board.
7. Reattach the ground lead from the power entry module to the printer chassis and secure it with the nut.
8. Refer to Figure 4-12. Reinstall the font card or memory card into the card slot located at the rear of the printer. Reinstall option card shield and secure with the screw.
9. Reinstall the optional interface board if necessary.
10. Reinstall the electronics cover.
11. Reconnect the data cables and the AC power cord.
12. Ensure that the power switch is in the Off (O) position. Connect the power cord to a live AC power source.
13. Place the power switch in the On (I) position. After the AUTO CALIBRATION/POST, press the SETUP/EXIT key to enter the configuration mode. Press NEXT/SAVE key until you get to the HEAD RESISTOR prompt. Enter the printhead resistance value and permanently save the new configuration.

NOTE: *During the programming process, you must perform a complete printer calibration. Refer to Section 2 of this manual.*

RRP No. 7: Remove and Install the Main Logic Board (Printer Configurations 10500-2XXX-XXXX and 10500-3XXX-XXXX)

Refer to page 4-18 for printer configurations 10500-0XXX-XXXX and 10500-1XXX-XXXX.

CAUTION:



OBSERVE PROPER ELECTROSTATIC SAFETY PRECAUTIONS WHEN HANDLING ANY STATIC-SENSITIVE COMPONENTS SUCH AS PRINTED CIRCUIT BOARDS AND PRINTHEADS.

To remove the main logic board:

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (O) position and disconnect the AC power cord. Disconnect the data cables.
2. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.

NOTE: *Retain all attaching hardware to use during reassembly.*

3. Refer to Figure 4-13. Remove the option card shield if installed. Press the card release the button to remove the PCMCIA card from the card slot located at the rear of the printer.

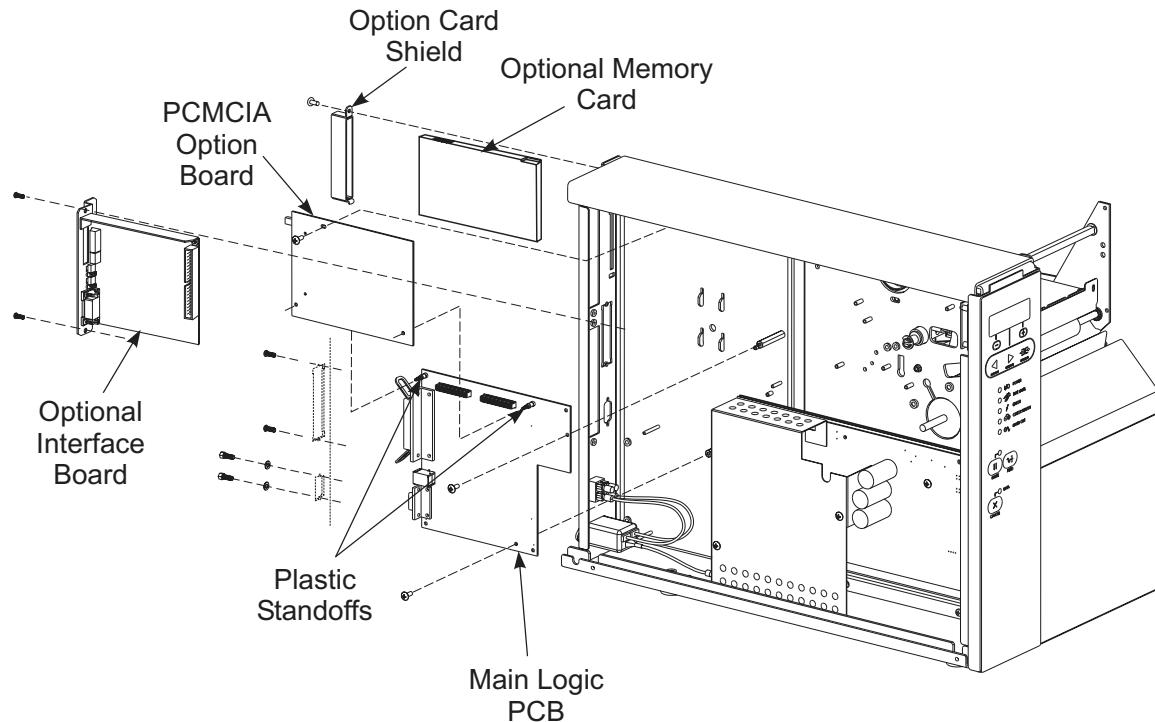


Figure 4-13. Main Logic Board Removal and Installation (Printer Configurations 10500-2XXX-XXXX and 10500-3XXX-XXXX)

4. Remove the optional interface board if installed.
5. If there is a PCMCIA option board, remove the screw attaching the option board to the standoff on the printer main frame. To release the PCMCIA option board from the main logic board, carefully squeeze the ends of the standoffs to free the board, and disconnect the two connectors from J23 and J24. Remove option board.
6. Refer to Figure 4-5. Disconnect all ribbon cables and wire connectors from the main logic board.
7. Refer to Figure 4-13. At the rear of the printer, remove the two screws and the two studs with their washers holding the serial and parallel interface connectors to the back of the printer.
8. Pivot the front end of the main logic board away from the printer and then pull the board away from the back panel.

To install the main logic board:

1. Position the cables out of the way. Position the new main logic board so that the parallel and serial connectors extend through the rear panel. Line up the main logic board with the two hex standoffs. Secure the logic board to the standoffs with two screws.

2. Fasten the serial port connector to the rear panel with two studs and washers.
3. Fasten the parallel port connector to the rear panel with two screws.
4. If there is the PCMCIA option board, align the two connectors on the option board with P23 and P24 and align the two holes at the bottom with the two standoffs on the main logic board. Press the option board to engage the two connectors and capture the two standoffs. Secure the PCMCIA board to the standoff on the main frame with the screw. Reinstall the card and the PCMCIA cover.
5. Refer to Figure 4-5. Carefully reconnect all the ribbon cables and wire connections to the connectors on the main logic board.
6. Refer to Figure 4-13. Reinstall the font card or memory card into the card slot located at the rear of the printer. Reinstall option card shield and secure with the screw.
7. Reinstall the optional interface board if necessary.
8. Reinstall the electronics cover.
9. Reconnect the data cables and the AC power cord.
10. Ensure that the power switch is in the Off (**O**) position. Connect the power cord to a live AC power source.
11. Hold the – key and place the power switch in the On (**I**) position. Hold the – key until all the front panel lights flash, then release the key to enter the Manufacturing Menu.
12. Press the NEXT/SAVE key until MODEL SELECT menu appears. Select 105-8 or 105-12 depending on the printhead in the printer. Press the right arrow key to save the selection.
13. Place the power switch in the Off (**O**) position.
14. Wait at least five seconds and place the power switch in the On (**I**) position. After the AUTO CALIBRATION/POST, press the SETUP/EXIT key to enter the configuration mode. Press NEXT/SAVE key until you get to the HEAD RESISTOR prompt. Enter the printhead resistance value and permanently save the new configuration.

NOTE: *During the programming process, you must perform a complete printer calibration. Refer to Section 2 of this manual.*

RRP No. 8: Adjust the Main Drive Belt Tension

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (**O**) position and disconnect the AC power cord. Disconnect the data cables.
2. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
3. Remove the ribbon and media.
4. Refer to Figure 4-14. Rotate the ribbon take-up pulley until the three holes in the pulley align with the three mounting screws that hold the ribbon take-up spindle assembly to the printer frame.
5. Extend an Allen wrench through the holes in the ribbon take-up pulley and loosen the three spindle assembly mounting screws.

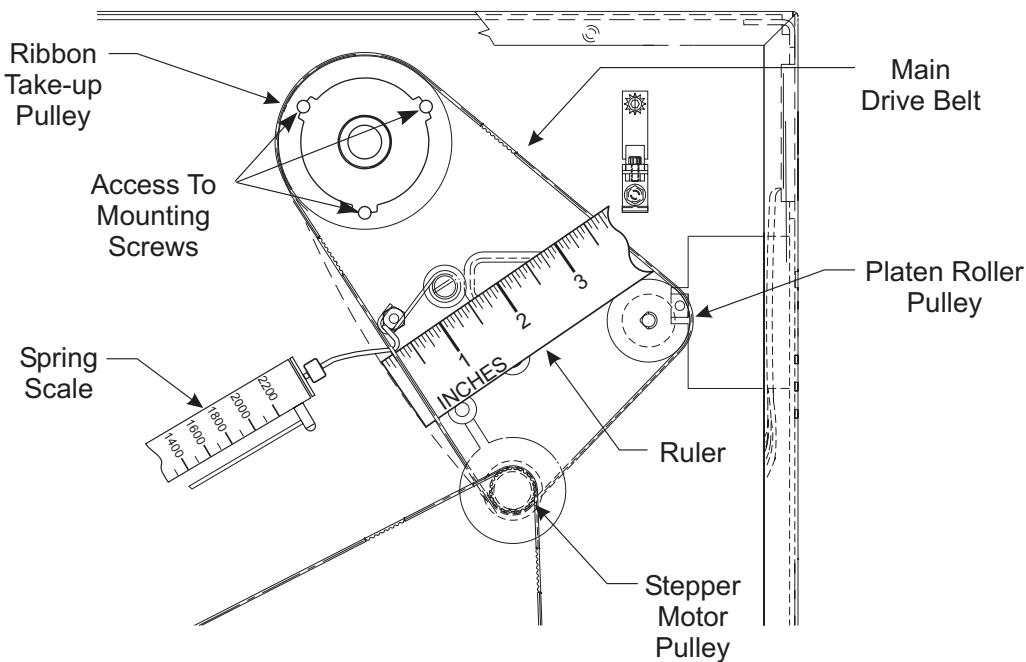


Figure 4-14. Main Drive Belt Adjustment

6. Slide the ribbon take-up spindle assembly to the right to relieve the tension on the main drive belt.
7. Hook a 2200-gram spring scale to the belt as shown in Figure 4-14 and carefully slide the ribbon take-up spindle assembly to the left to increase belt tension.
8. When a scale reading of 2000 grams \pm 250 grams (4.5 lbs. \pm 0.5 lbs.) creates a deflection of 1/4 inch (6 mm), tighten the three mounting screws to a torque of 20 inch-pounds (2.3 N•m).
9. Reinstall the electronics cover.
10. Reinstall the media and ribbon. Close the printhead.
11. Close the media cover.
12. Reconnect the data cables and the power cord.
13. Reconnect the power cable to the power source. Place the power switch in the On (I) position.

RRP No. 9: Remove and Install the Main Drive Belt

To remove the main drive belt:

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (O) position and disconnect the AC power cord. Disconnect the data cables.
2. Open the media cover.
3. Open the printhead and remove the media and ribbon. Close the printhead.
4. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.

5. Refer to Figure 4-14. Rotate the ribbon take-up pulley until the three holes in the pulley align with the three mounting screws that hold the ribbon take-up spindle assembly to the printer frame.
6. Extend an Allen wrench through the holes in the ribbon take-up pulley and loosen the three spindle assembly mounting screws.
7. Slide the ribbon take-up spindle assembly to the right to relieve the tension on the main drive belt.
8. Remove the main drive belt by sliding it off the ribbon take-up pulley. See Figure 4-15.

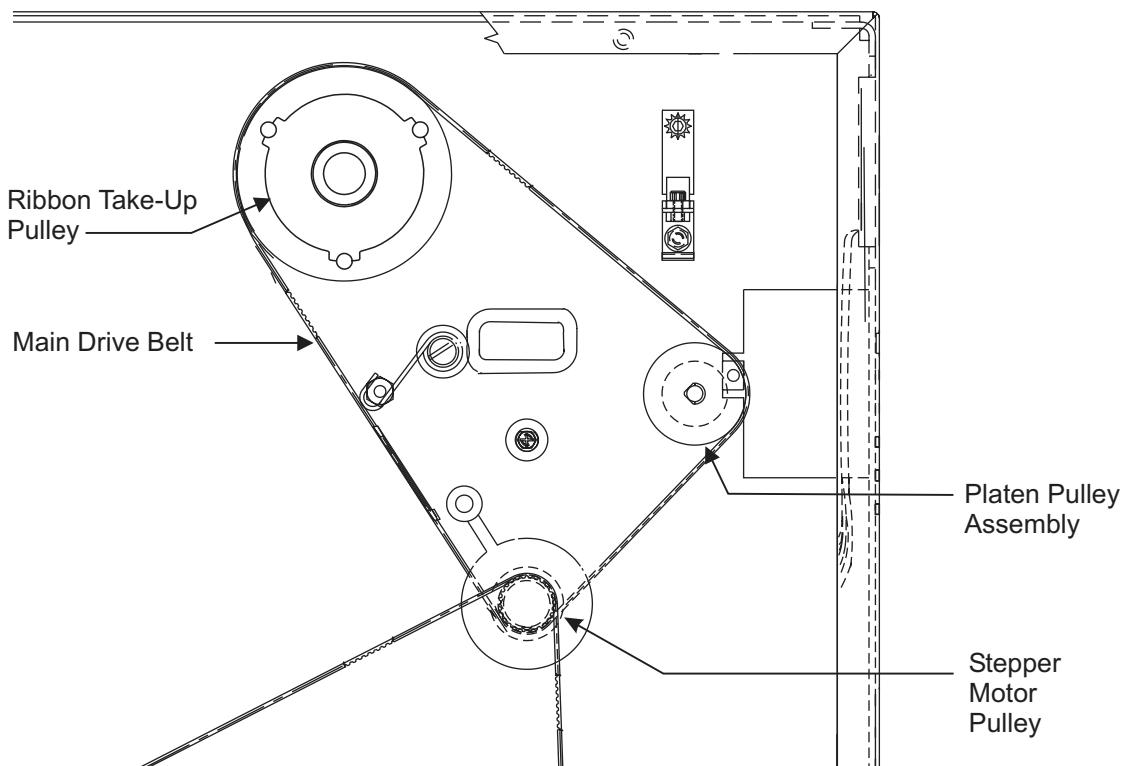


Figure 4-15. Main Drive Belt

To install the main drive belt:

1. Install the replacement main drive belt around the outer gear of the stepper motor pulley, the platen pulley, and the ribbon take-up pulley.
2. Hook a 2200-gram spring scale to the belt as shown in Figure 4-14 and carefully slide the ribbon take-up spindle assembly to the left to increase belt tension.
3. When a scale reading of 2000 grams \pm 250 grams (4.5 lbs. \pm 0.5 lbs.) creates a deflection of 1/4 inch (6 mm), tighten the three mounting screws to a torque of 20 inch-pounds (2.3 N•m).
4. Reinstall the electronics cover.
5. Open the printhead. Reinstall the media and ribbon. Close the printhead.
6. Close media cover.
7. Reconnect the data cables and the power cord.

8. Reconnect the power cable to the power source. Place the power switch in the On (I) position.

RRP No. 10: Adjust the Rewind Drive Belt Tension

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (O) position and disconnect the AC power cord. Disconnect the data cables.
2. Open the media cover.
3. Open the printhead and remove the media and ribbon. Close the printhead.
4. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
5. For printers with configuration number 10500-0XXX-XXXX or 10500-1XXX-XXXX, refer to RRP No. 3 on page 4-13 and remove the DC power supply.

or

For printers with configuration number 10500-2XXX-XXXX or 10500-3XXX-XXXX, refer to RRP No. 5 on page 4-16 and remove the AC/DC power supply.

6. Refer to Figure 4-16 and locate the idler pulley used to adjust the tension of the rewind drive belt.

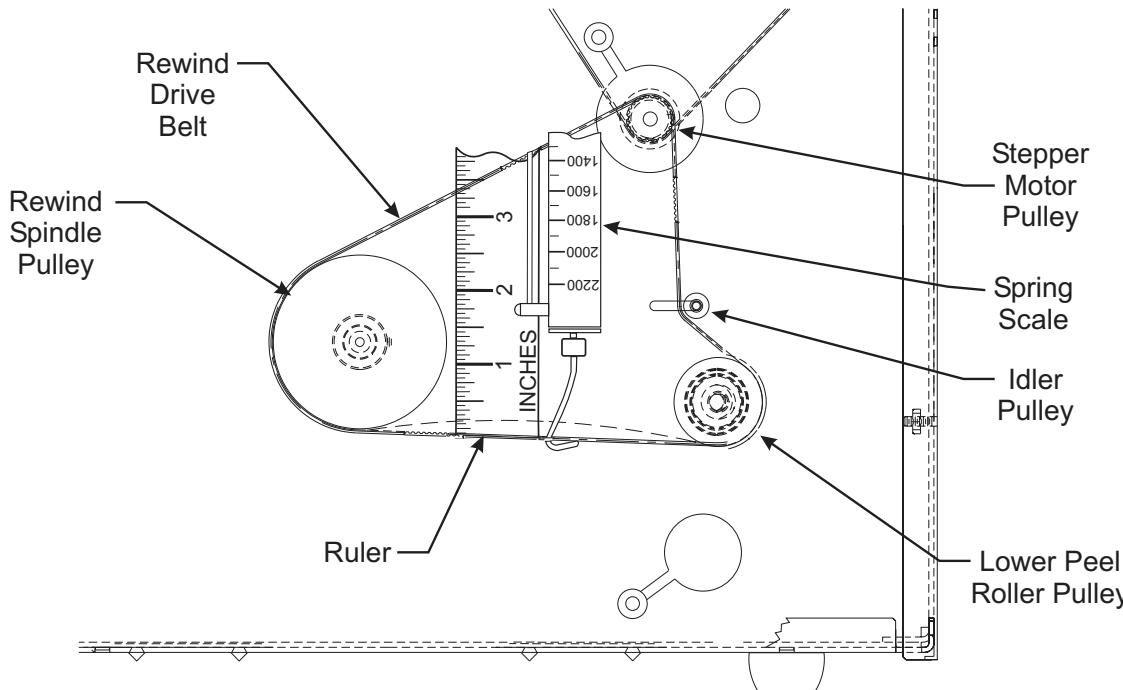


Figure 4-16. Rewind Drive Belt Tension Adjustment

7. On the media side of the printer, locate the lower access hole in the side plate. Remove the plug. Extend special tool (part # 11301) through the hole and loosen the idler pulley mounting screw.
8. Slide the idler pulley assembly toward the front of the printer to relieve the tension on the rewind drive belt.
9. Hook a 2200-gram spring scale to the belt and carefully slide the idler gear assembly to the left to increase belt tension.

10. When a scale reading of 2000 grams \pm 250 grams (4.5 lbs. \pm 0.5 lbs.) creates a deflection of 1/4 inch (6 mm), tighten the idler pulley mounting screw to a torque of 20 inch-pounds (2.3 N•m).
11. Reinstall the plug into the lower access hole.
12. Reinstall the DC power supply or the AC/DC power supply, depending on configuration.
13. Reinstall electronics cover.
14. Reinstall the media and ribbon. Close the media cover.
15. Reconnect the power cable to the power source. Place the power switch in the On (**I**) position.

RRP No. 11: Remove and Install the Rewind Drive Belt

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (**O**) position and disconnect the AC power cord. Disconnect the data cables.
2. Open the media cover.
3. Open the printhead and remove the media and ribbon. Close the printhead.
4. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
5. Refer to RRP No. 9 on page 4-23 and remove the main drive belt.
6. For printers with configuration number 10500-0XXX-XXXX or 10500-1XXX-XXXX, refer to RRP No. 3 on page 4-13 and remove the DC power supply.

or

For printers with configuration number 10500-2XXX-XXXX or 10500-3XXX-XXXX, refer to RRP No. 5 on page 4-16 and remove the AC/DC power supply.

7. Refer to Figure 4-17 and locate the idler pulley. On the media side of the printer, remove the plug from the lower access hole in the side plate. Extend special tool (part # 11301) through the hole and loosen the idler pulley mounting screw.
8. Slide the idler pulley assembly toward the front of the printer to relieve tension on the rewind drive belt.
9. Remove the rewind drive belt.
10. Install the replacement rewind drive belt around the inner stepper motor pulley, inside the idler pulley, around the lower peel roller pulley, and slide it around the rewind spindle pulley.
11. Refer to RRP No. 10 on page 4-25 and adjust the tension on the rewind drive belt.
12. Reinstall the DC power supply or the AC/DC power supply, depending on configuration.
13. Refer to RRP No. 9 on page 4-23 and reinstall the main drive belt.
14. Refer to RRP No. 8 on page 4-22 and adjust the tension on the main drive belt and place the printer back into service.

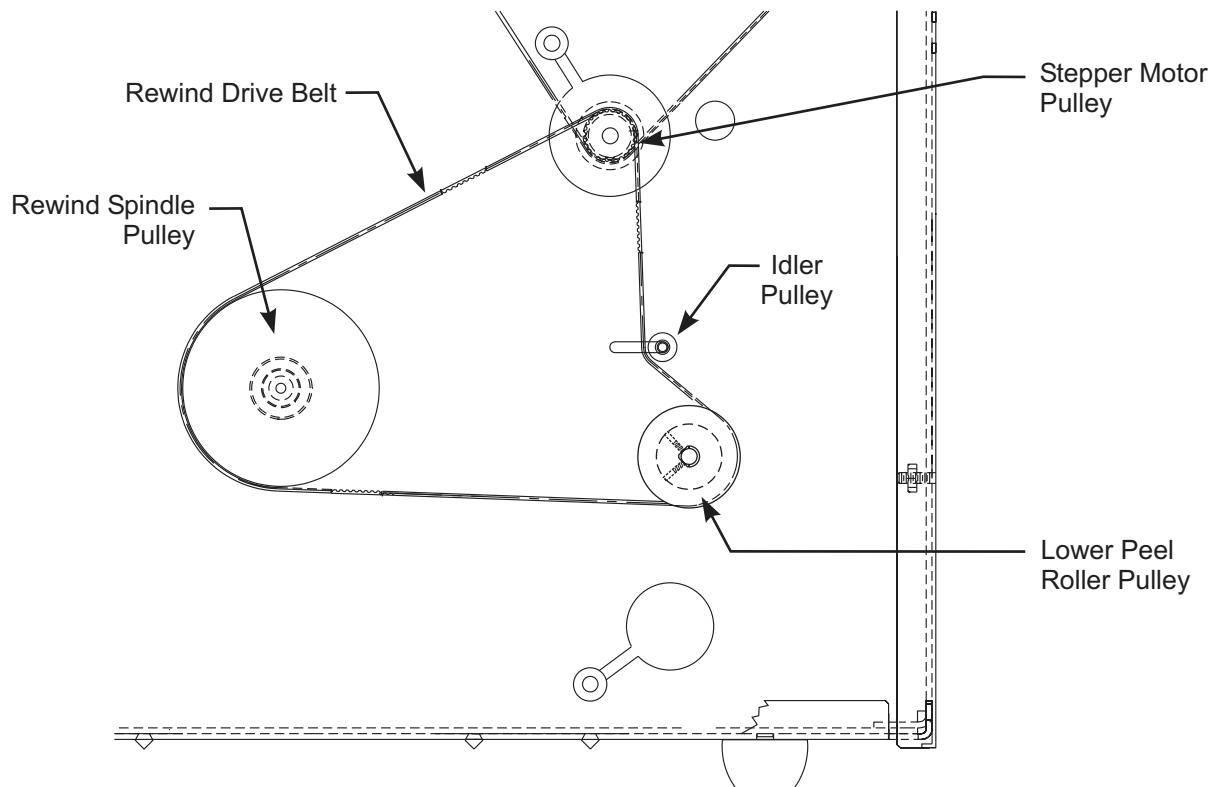


Figure 4-17. Rewind Drive Belt Removal and Installation

Printhead Replacement

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (O) position and disconnect the AC power cord. Disconnect the data cables.
2. Open the media cover.
3. Open the printhead and remove the media and ribbon. Close the printhead.



CAUTION:

OBSERVE PROPER ELECTROSTATIC SAFETY PRECAUTIONS WHEN
HANDLING ANY STATIC-SENSITIVE COMPONENTS SUCH AS PRINTED
CIRCUIT BOARDS AND PRINTHEADS.

NOTE: *The printhead mounting screw is captive to the printhead mounting bracket.*

4. Refer to Figure 4-18 and loosen the spring-loaded mounting screw until it disengages from the printhead.
5. Slowly open the printhead assembly. The printhead remains on the platen while the rest of the assembly pivots out of the way.
6. Gently pull away the printhead data connector from the printhead.
7. Gently pull away the power cable connector from the printhead.

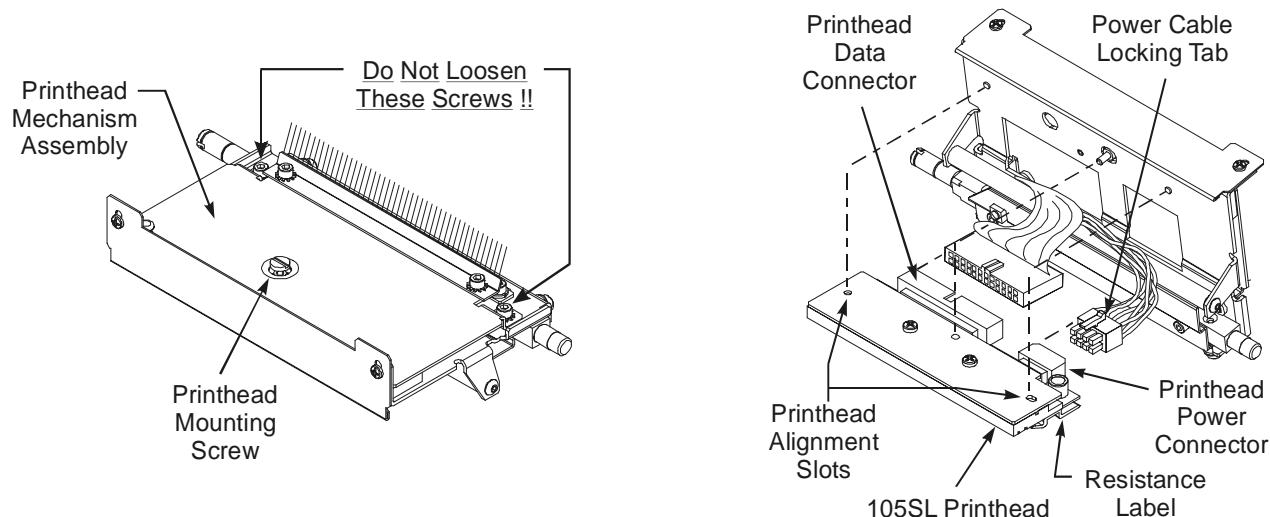


Figure 4-18. Printhead Replacement

8. Remove the printhead through the front of the printer.



CAUTION:

THE PRINthead IS VERY DELICATE AND SUSCEPTIBLE TO DAMAGE IF NOT HANDLED CAREFULLY. USE PARTICULAR CARE TO ENSURE THAT THE PRINthead IS NOT DAMAGED WHEN HANDLING IT.

- NOTE:** *Printhead resistance must be set in printer configuration after the replacement printhead is installed. Make note of the resistance value before installing the replacement printhead.*

9. Refer to Figure 4-19 and locate the sticker with the printhead resistance. Write the resistance value here: _____

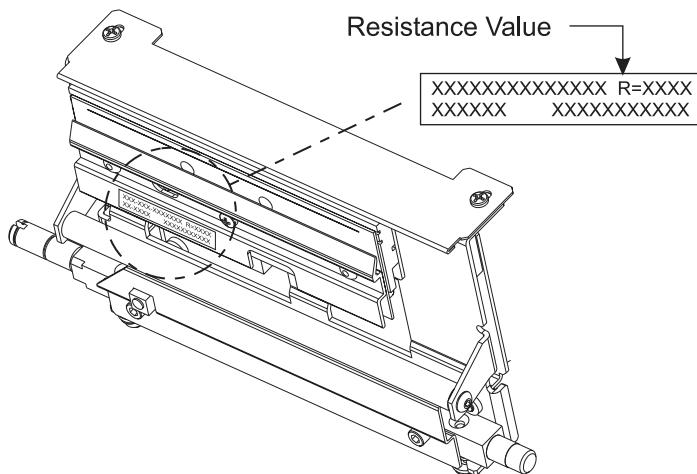
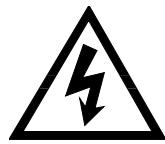


Figure 4-19. Printhead Resistance Value Label



WARNING:
IF THE DATA CABLE IS NOT CONNECTED SECURELY TO THE PRINthead, A HEAD COLD WARNING MESSAGE MAY APPEAR ON THE DISPLAY EVEN THOUGH THE PRINthead MAY BE VERY HOT. ACCIDENTALLY TOUCHING A HOT PRINthead CAN CAUSE SEVERE BURNS.

10. Refer to Figure 4-18 and connect the printhead data cable and the power cable to the replacement printhead.
11. Carefully position the alignment slots in the new printhead over the alignment posts on the underside of the mounting bracket.
12. Seat the printhead completely and hold it in place. Carefully tighten the mounting screw to secure it to the mounting plate.
13. Refer to Figure 4-20. Use a cleaning swab from the printhead cleaning kit (Zebra part # 01429) and thoroughly clean the gray area of the new printhead.

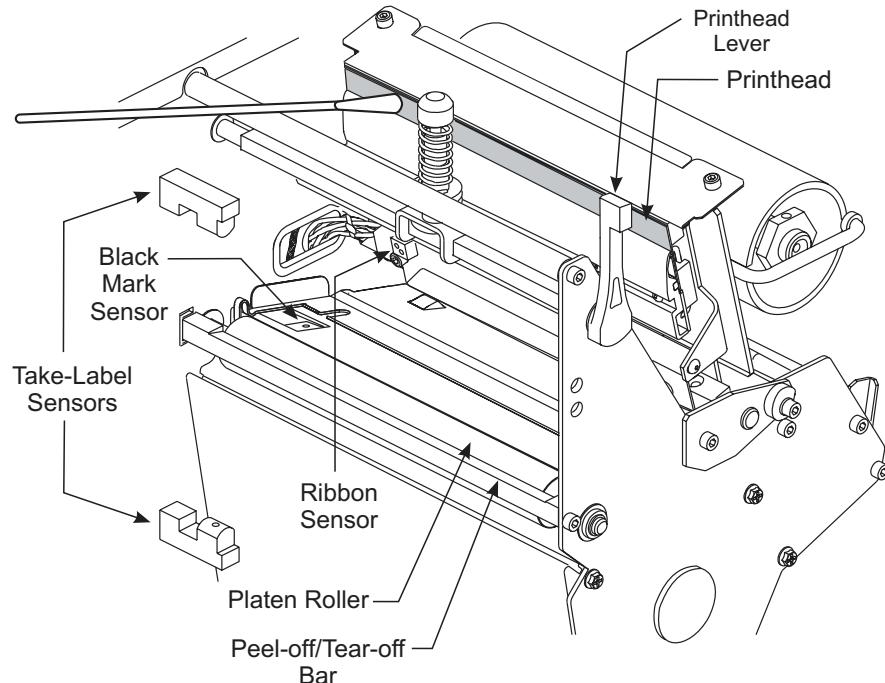


Figure 4-20. Printhead Cleaning

14. Carefully close and open the printhead to ensure that there are no obstructions.
15. Reinstall the media and ribbon. Close the printhead.
16. Connect the AC power cord. Place the power switch to the On (I) position.
17. After the AUTO CALIBRATION/POST, press the SETUP/EXIT key to enter the configuration mode. Press NEXT/SAVE key until you get to the HEAD RESISTOR prompt. Enter the new printhead resistance value and permanently save the new configuration.

18. Place the power switch in the Off (O) position. Perform the PAUSE Key Self Test and check print quality. If only half of a label is printed, the printhead is not seated properly. If the label printed properly, the printer is ready for operation. If print quality is not satisfactory, refer to Troubleshooting Table in Section 3 and proceed to Printhead Adjustments.

Printhead Adjustments

CAUTION:



OTHER THAN PRINthead PRESSURE, PRINthead ADJUSTMENTS RARELY NEED TO BE PERFORMED, EVEN AFTER REPLACING THE PRINthead. THESE ADJUSTMENTS SHOULD BE PERFORMED ONLY BY QUALIFIED TECHNICIANS WHO HAVE BEEN SPECIFICALLY TRAINED. DO NOT PERFORM THESE ADJUSTMENTS UNLESS YOU HAVE BEEN TRAINED TO DO SO.

There are four printhead adjustments that affect print quality. The adjustments should be performed in the following order:

- Printhead Pressure
- Printhead Position
- Wear Plate (Balance) Position
- Printhead Parallelism

NOTE: *To achieve optimum results with print quality adjustments, install full width media and ribbon. Verify the media and ribbon are properly matched and darkness/print speed configurations are correct for the application before performing any mechanical adjustments.*

Printhead Pressure

1. Ensure that the power switch is in the Off (O) position.
2. Refer to Figure 4-21 and measure the distance from the top of the toggle foot to the bottom of the lower knurled nut. If the measurement is not 1-3/16" (30 mm), loosen the upper knurled nut and adjust the lower knurled nut until the distance is correct.

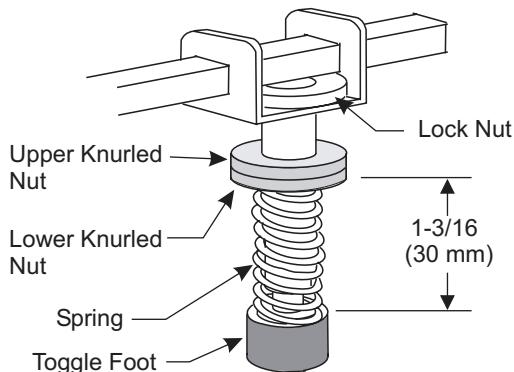


Figure 4-21. Initial Toggle Setting

3. Tighten the upper knurled nut against the lower knurled nut to lock that position.

4. Install media and ribbon, and position the toggle in the center of the print mechanism.
5. Perform the PAUSE Key Self Test by holding the PAUSE key while placing the power switch to the On (I) position.

NOTE: *To increase printhead pressure, loosen the upper knurled nut on the toggle and adjust the lower toggle knurled nut downwards. To decrease printhead pressure, loosen the upper knurled nut and adjust the lower knurled nut upwards.*

6. Adjust printhead pressure for the lowest pressure that produces acceptable print quality. To lock the toggle pressure, tighten the upper knurled nut against the lower knurled nut.

Printhead Position Adjustment

CAUTION:



PRINTHEAD POSITION ADJUSTMENT RARELY NEEDS TO BE PERFORMED. DO NOT PERFORM THIS ADJUSTMENT UNLESS YOU HAVE BEEN TRAINED TO DO SO. IF THE PROCEDURE IS NOT DONE CORRECTLY, PRINT QUALITY WILL BE ADVERSELY AFFECTED.

Adjusting the printhead position moves the printhead with respect to the platen for optimum print quality. If satisfactory print quality cannot be achieved or can only be achieved with higher than normal darkness settings and/or higher than normal printhead pressure, the printhead may not be in the proper position.

Refer to Figure 4-22 for location of adjustment screws.

NOTE: *The thermal elements of the printhead should be aligned just behind top dead center of the platen roller.*

1. Print test labels using the PAUSE Key Self Test.
2. Enter the Configuration mode and set the darkness to achieve as close to optimum print quality as possible.
3. Refer to Figure 4-22. Loosen the four screws at the top rear of the print mechanism.

NOTES: *Make very small adjustments and check the results. Turn the screws clockwise to move the printhead toward the front of the printer. Turn the screws counterclockwise to move the printhead toward the back of the printer.*

Special tool (part # 11301) allows adjustment of the printhead location screws while the printer is running.

4. Adjust the printhead position by turning the two screws located at the back of the print mechanism equally. Turn both screws one-eighth turn clockwise and observe the changes in print quality. Turn both screws one-sixteenth turn counterclockwise and observe the changes in print quality. Due to spring pressure, there may be a dead spot in the actual printhead movement when changing adjustment direction.

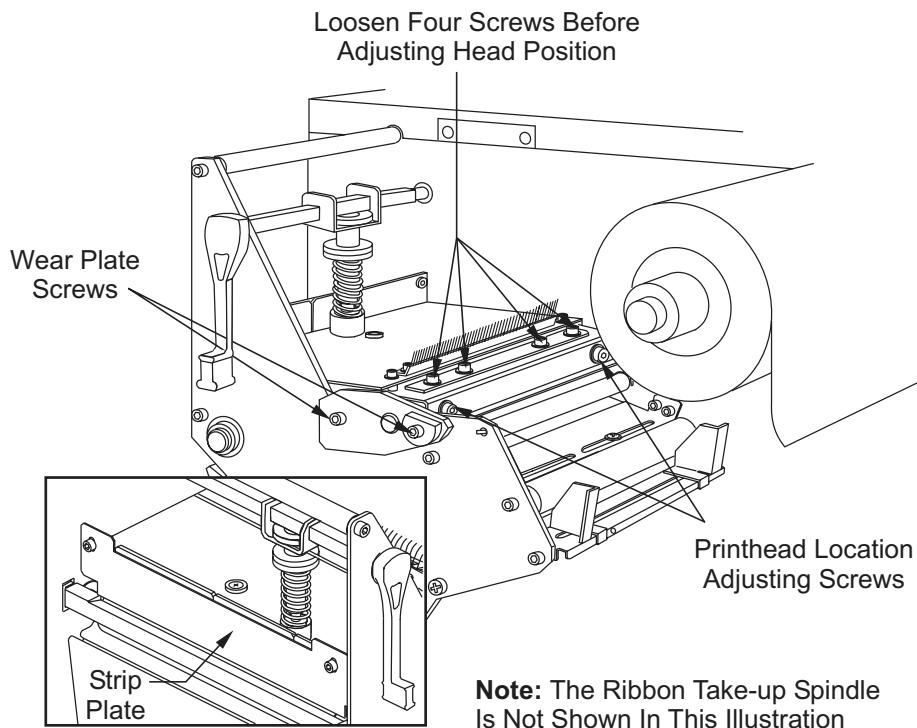


Figure 4-22. Printhead Adjustment

5. Continue to make the small adjustments in both directions until the best quality is achieved.
6. Enter the Configuration mode and decrease the darkness setting until the PAUSE Key Self Test labels are a charcoal gray color.
7. Inspect the test labels for streaks, flowering and other print quality problems.
8. If required, adjust the printhead position until print quality problems are corrected.
9. Enter the Configuration mode and increase the darkness until the PAUSE Key Self Test labels are printed at optimum resolution and contrast.
10. When acceptable print quality is achieved, tighten the four screws at the top of the printhead.
11. Run additional PAUSE Key Self Test labels to verify proper positioning.

Wear Plate (Balance) Position Adjustment



CAUTION:
WEAR PLATE POSITION ADJUSTMENT RARELY NEEDS TO BE
PERFORMED. DO NOT PERFORM THIS ADJUSTMENT UNLESS YOU
HAVE BEEN TRAINED TO DO SO. IF THE PROCEDURE IS NOT DONE
CORRECTLY, PRINT QUALITY WILL BE ADVERSELY AFFECTED.

Adjusting the wear plate position changes the pressure across the width of the printhead and platen roller. If uneven printing occurs when the toggle is properly positioned in the middle of the printhead and printhead pressure is set correctly, the wear plate may need adjustment.

Refer to Figure 4-23 for the location of the adjustment screws used in the following procedure.

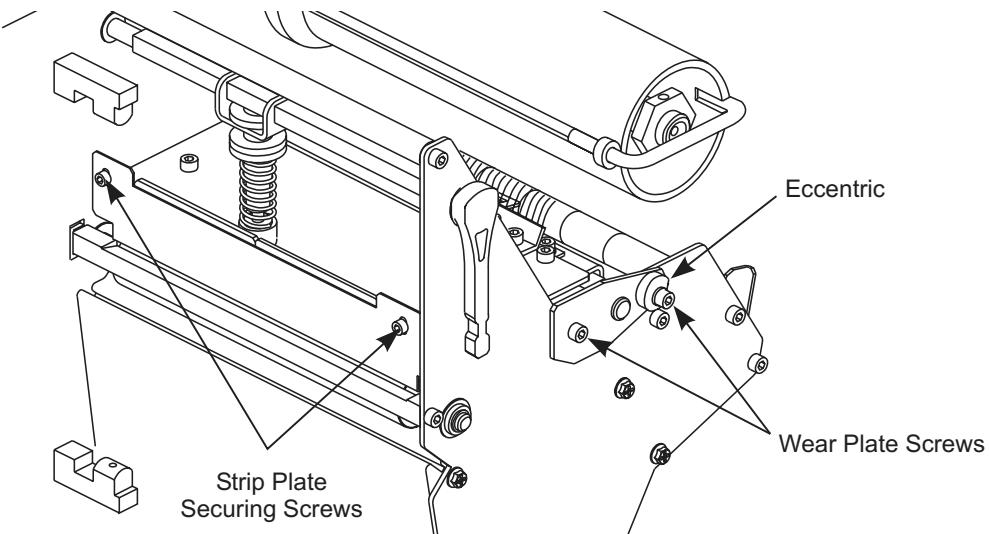


Figure 4-23. Wear Plate Adjustment

1. Enter Configuration mode and decrease the darkness setting until the PAUSE Key Self Test labels are a charcoal gray color.
2. Slightly loosen the two screws on the wear plate.

NOTES: *Print PAUSE Key Test labels while adjusting the wear plate eccentric and check for even printing.*

Adjust the wear plate eccentric by turning it by hand or with an open-end wrench or pliers. Make very small adjustments and check the results.

Wear plate adjustments can adversely affect parallelism.

3. Adjust the wear plate eccentric clockwise to increase pressure on the main frame side of the label or adjust it counterclockwise to increase pressure on the outboard side of the printer.
4. When even print quality is achieved, hold the wear plate eccentric in position and tighten the two wear plate screws.
5. Enter Configuration mode and increase the darkness setting until the PAUSE Key Self Test labels are at optimum resolution and contrast.

6. Continue to print PAUSE Key Self Test labels and verify even printing and parallelism.
7. If parallelism is out of tolerance, perform the “Printhead Parallelism Adjustment” on page 4-34.
8. If no other adjustment is required, tighten the two screws to lock the adjustment.

Printhead Parallelism Test

Adjusting the printhead parallelism squares the printhead with respect to the media path.

1. Prior to starting this test, ensure the installed media is “squared” (at 90°) to the tear-off bar. Open the printhead and move media until it is square with the tear-off bar. Close printhead.
2. Print the PAUSE Key Self Test labels.
3. The uppermost line on the test label should be parallel to the top edge of the label, within a tolerance of 0.020" (0.5 mm).
4. If the print lines are not parallel with the top of the label, proceed to the printhead parallelism adjustment. If parallelism is within tolerance, **do not** perform the procedure.

Printhead Parallelism Adjustment

CAUTION:



PRINTHEAD PARALLELISM ADJUSTMENT RARELY NEEDS TO BE PERFORMED. DO NOT PERFORM THIS ADJUSTMENT UNLESS YOU HAVE BEEN TRAINED TO DO SO. IF THE PROCEDURE IS NOT DONE CORRECTLY, PRINT QUALITY WILL BE ADVERSELY AFFECTED.

The printhead parallelism adjustment corrects for printing skew. If the lines at the top of the PAUSE Key Self Test labels are not parallel to the media, this adjustment should be performed.

1. Refer to Figure 4-22. Loosen the four screws at the top rear of the print mechanism.

NOTES: *Make very small adjustments and check the results. Adjust one screw at a time. Turn the screw clockwise to move the printhead toward the front of the printer. Turn the screw counterclockwise to move the printhead toward the back of the printer.*

Special tool (part # 11301) allows adjustment of the printhead location screws while the printer is running.

2. Adjust the parallel location of the uppermost lines by turning one of the screws located at the back of the print mechanism.
3. Adjust one side as necessary to align the uppermost line of the test label parallel with the top edge of the label.
4. To check the results of your adjustments, run additional PAUSE Key Self Test labels and check for proper parallelism.
5. When parallelism is achieved, tighten the four screws at the top of the printhead.
6. Run additional PAUSE Key Self Test labels to verify proper positioning.

Strip Plate Adjustment

The strip plate can be adjusted to achieve proper tracking and separation of the ribbon from the media after printing.

1. Print PAUSE Key Self Test labels.
2. Press the PAUSE key. After the printer pauses, observe the ribbon for problems such as wrinkling.
3. Refer to Figure 4-23 and loosen, but do not remove, the two screws holding the strip plate to the front of the printhead assembly.
4. While running the PAUSE Key Self Test, lower the strip plate so that the ribbon tracks flat and smoothly when fed to the ribbon take-up spindle.
5. Tighten the strip plate screws. Print a minimum of 25 labels and check for ribbon wrinkle, tracking and media/ribbon separation problems. If ribbon problems persist, refer to "Spindle Tension Adjustment" on page 4-39.

Darkness Adjustment

Differences in types of media/ribbon and wear on thermal printhead elements may make it necessary to adjust the darkness setting (burn temperature) of the printhead.

NOTE: *Turning off the printer is not required for the new setting to take effect.*

Use the following procedure to adjust the darkness:



CAUTION:

SET THE DARKNESS TO THE LOWEST SETTING POSSIBLE FOR THE DESIRED PRINT QUALITY. DARKNESS SET TOO HIGH FOR A GIVEN RIBBON MAY CAUSE INK SMEARING, RIBBON WRINKLE, AND/OR BURNING THROUGH OF THE RIBBON. HIGH DARKNESS SETTINGS WILL REDUCE PRINthead LIFE.

1. Begin printing a batch of labels. Use the PAUSE Key, CANCEL Key Self Test label or a saved format.
2. Enter the Configuration mode and adjust the darkness setting until the desired print quality is achieved.

Transmissive Media Sensor Position Adjustment

The transmissive media sensor senses either the "web" between labels or a hole or notch in the print media to determine the length of the label or ticket.

The factory-set position should be sufficient for any width label when using media with a web, so normally no repositioning is required. If it does become necessary to reposition the transmissive media sensor, refer to Figure 4-24 and Figure 4-25 and perform the upper transmissive media sensor adjustment and the lower transmissive media sensor adjustment.

Use the following procedure to adjust the upper transmissive media sensor:

1. Remove the ribbon.

2. Refer to Figure 4-24 and locate the upper media sensor.

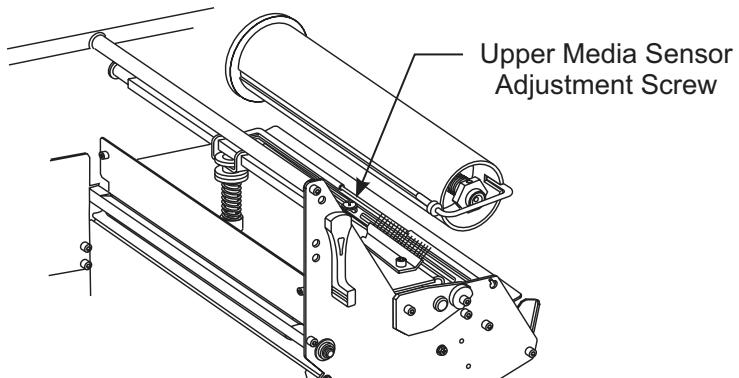


Figure 4-24. Upper Transmissive Media Sensor Position Adjustment

3. Carefully loosen, but do not remove, the screw at the top of the sensor.

NOTE: *When using label stock that has a web between labels, position the upper media sensor anywhere along the web, except where the rounded corners of the label are detected. When using tag stock, position the upper sensor directly over the hole or notch.*

4. Slide the upper sensor along the slot to the desired position.
5. Tighten the screw to secure the sensor.

Use the following procedure to adjust the lower transmissive media sensor:

1. Refer to Figure 4-25 and locate the lower media sensor assembly under the rear idler roller.

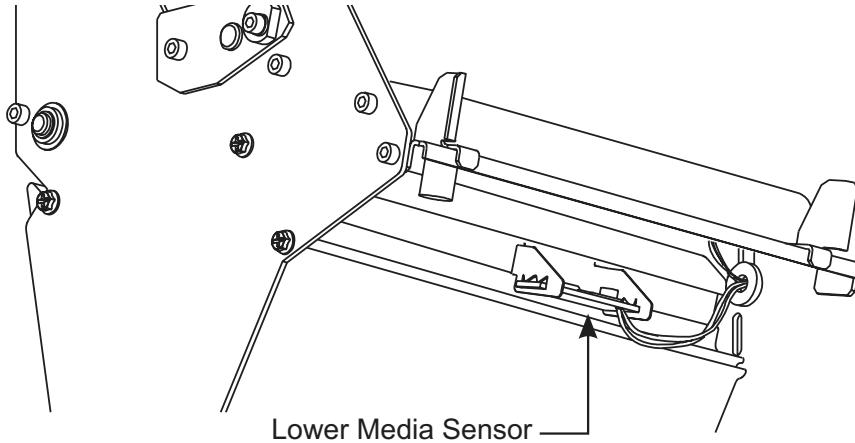


Figure 4-25. Lower Transmissive Media Sensor Position Adjustment

2. Position the sensor by sliding it in its slot, so that the two infrared emitters are directly centered under the upper sensor.
3. Gently pull wires out as required. Wires should have a little slack.

NOTE: *If moving the sensor results in a large loop of wires, dress the wires so that they will not contact any moving parts, media, or ribbon.*

Take Label (Label Available) Sensor Alignment

The take label sensor activates only when the printer is set to peel-off mode. This mode requires the Rewind or Peel option. The media sensor pair is **NOT** installed on printers without this option.

Refer to Figure 4-26 for the location of the take label sensor components. When the beam is broken, the printer will be inhibited from printing or feeding in peel-off mode only. It may, however, accept additional label formats if the buffer is not full. There is no sensitivity adjustment for the take label sensor. If you encounter problems, make certain the printer is set to peel-off mode and the sensors are aligned. Sensors are aligned at the factory or when the media rewind spindle option is installed. No adjustments are required after installation.

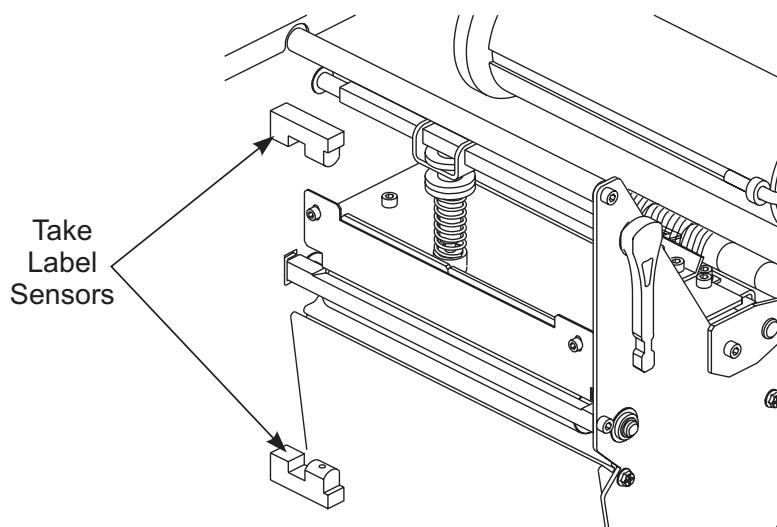


Figure 4-26. Take Label Sensor Location

Media Tracking Adjustment

Rewind Mode

If the media walks from side to side, tears, or wrinkles against the media rewind tracking plate, it is necessary to adjust the rewind plate assembly.

Refer to Figure 4-27.

NOTE: *Moving the outer end of the hook plate up forces the media toward the rewind tracking plate; moving this end down moves the media away from the tracking plate. The opposite effect occurs if the same adjustments are made on the inner end of the hook plate.*

1. Remove the rewind plate assembly and loosen the two hex nuts that attach the hook plate to the rewind plate.
2. Move the outer end of the hook plate up to force the media toward the rewind tracking plate (see Figure 4-29), or move the outer end of the hook plate down to force the media away from the rewind tracking plate.
3. Tighten the hex nuts, and reinstall the rewind plate assembly. Print a number of test labels. If problems persist, readjust the hook plate.

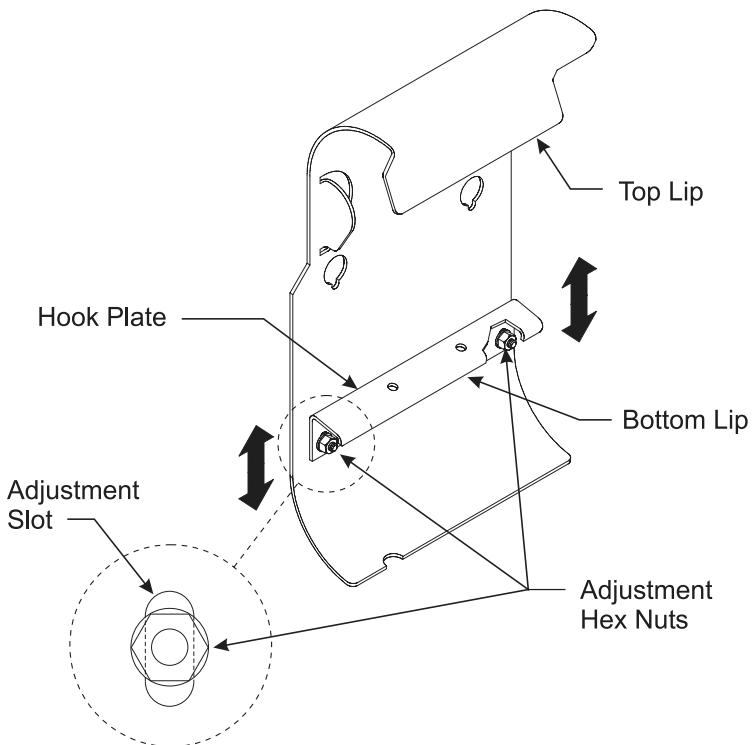


Figure 4-27. Rewind Plate Assembly

Peel-Off Mode

In peel-off mode, the lower roller alignment has the same effect on media tracking as the rewind plate alignment does in rewind mode. Refer to Figure 4-28 and perform the following procedure.

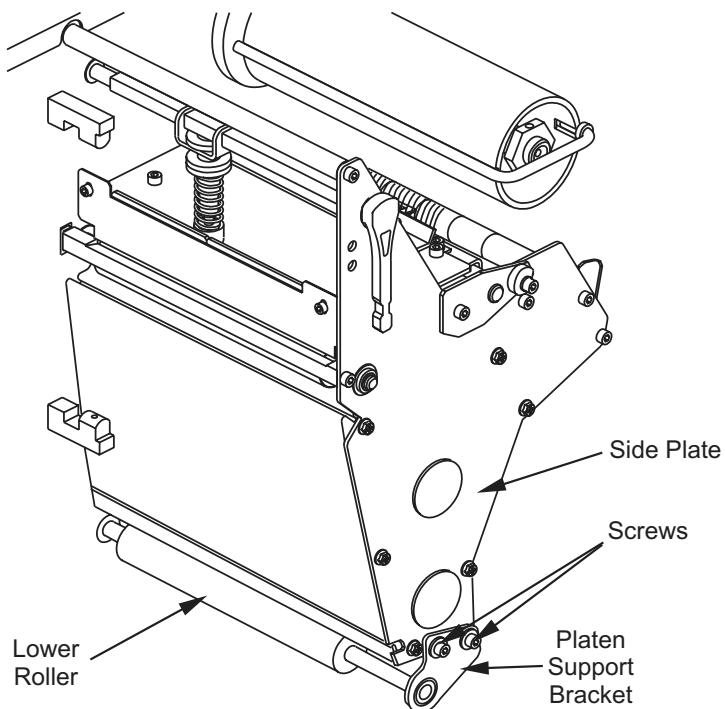


Figure 4-28. Peel-Off Lower Roller Alignment

1. Loosen the two screws that attach the platen support bracket to the side plate.

NOTE: *Moving the bracket toward the front of the machine moves the label backing material away from the rewind tracking plate. Moving the bracket toward the rear of the machine moves the label backing toward the tracking plate.*

2. Adjust the bracket position as required and tighten the screws.
3. Run test labels and repeat the adjustment until the required results are achieved.

Spindle Adjustment and Maintenance

There are three spindles that require periodic tension measurement and adjustment. Measuring spindle tension should be done at least once each year unless required more frequently due to greater printer use. Tension should be adjusted whenever it is not within the tolerance range associated with that spindle. If proper tension can not be achieved using the adjustment, it is likely that the felt washers have dried out or deteriorated and need to be replaced.

Tension Measurement Procedure

NOTE: *A spindle adjustment kit (part # 01773) is available from Zebra.*

The procedure for measuring spindle tension is similar for all three spindles. Refer to Figure 4-29.

1. Use label or piece of tape to attach a 2" (51 mm) wide strip of polyester film (part # 01776) to the spindle shaft, or core where required. Wind the polyester film around the spindle, or core, about 5 times in the direction indicated.
2. Measure tension by slowly and evenly pulling the film with a spring scale. Pull **ONLY** in the direction shown. The pull rate should typically be 2" (51 mm) per second.
3. Compare the spring scale reading with the force values provided in Figure 4-29. Perform the spindle adjustment only if the reading is out of spec.
4. If adjustment is made, recheck the tension after running a full roll of labels.

Spindle Tension Adjustment

Ribbon Supply Spindle

NOTE: *The ribbon supply spindle is adjusted by moving the end cap in and out along the shaft. Two set screws secure the end cap into position.*

Refer to the spindle tension adjustment diagram in Figure 4-29 and adjust the spindle tension as follows:

1. Loosen the set screws in the end cap at the end of the spindle.
2. Move the end cap in toward the spindle to increase the tension. Move it out away from the spindle to decrease the tension. Tighten the set screws.
3. Measure the spindle tension again. Compare the tension reading on the spring scale with the appropriate force value provided in Figure 4-29. Repeat the adjustment procedure until the correct tension is obtained.

Spindle	Force	Load (grams)
Ribbon Supply	F1	450 ±50
Ribbon Take-up	F2	450 ±50
Media Rewind	F3	1450 ±100
Liner Rewind	F4	1450 ±100

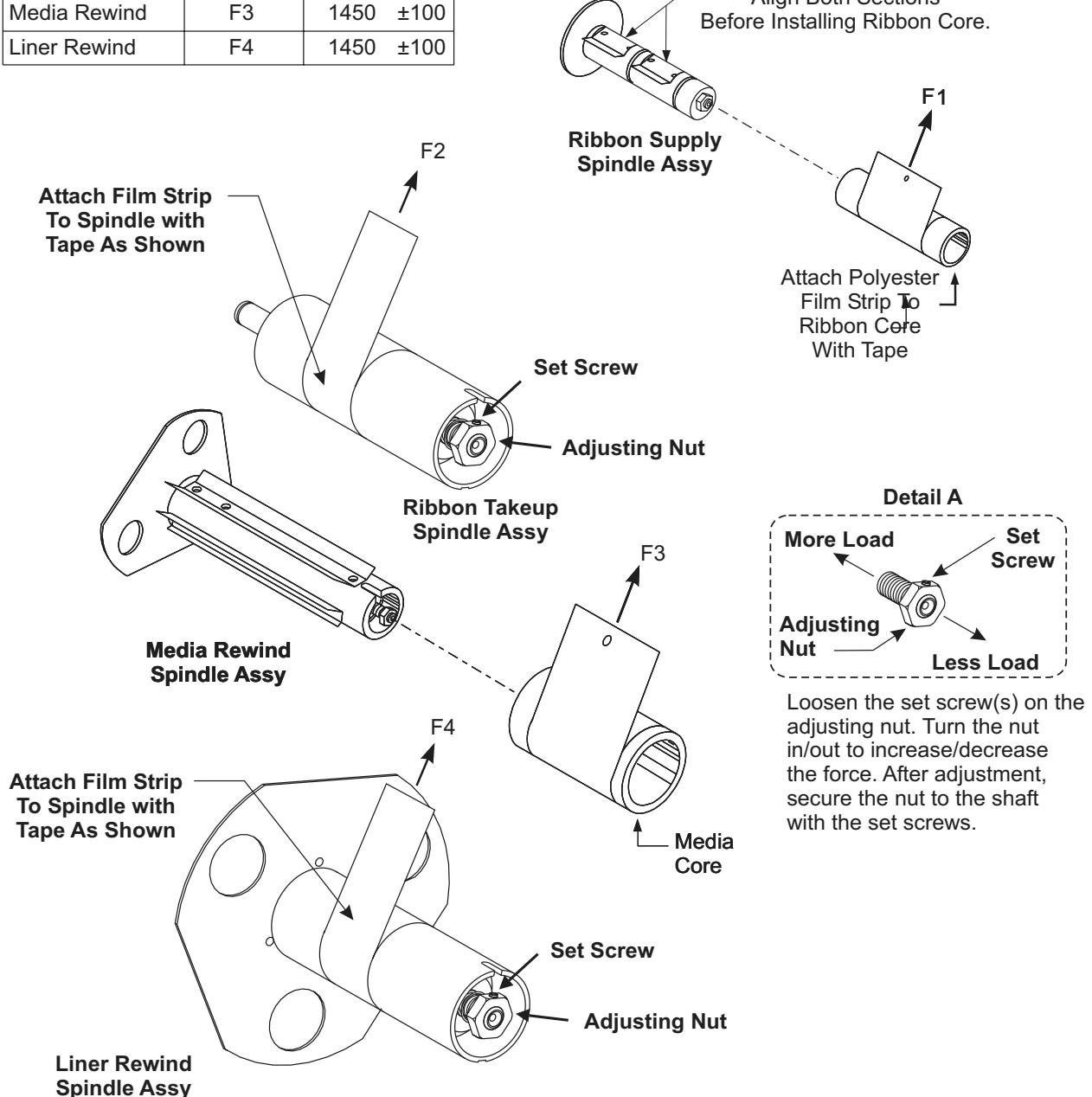


Figure 4-29. Spindle Tension Adjustments

Ribbon Take-Up Spindle and Rewind Spindles

Refer to the spindle tension adjustment diagram in Figure 4-29 and adjust the spindle tension as follows:

1. Loosen the set screws in the adjustment nut at the end of the spindle.

NOTE: *The shaft in the spindle must be held stationary as the adjustment nut is adjusted. To hold the spindle, refer to Figure 4-30 and insert an Allen wrench through the access hole on the inner end of the spindle and into the set screw in the shaft collar. DO NOT TURN THE ALLEN WRENCH. Hold the shaft in place while turning the adjustment nut.*

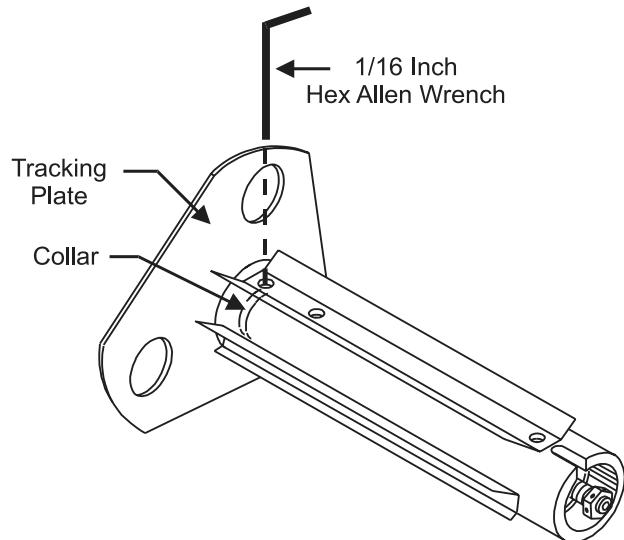


Figure 4-30. Media Rewind Spindle

2. Turn the adjustment nut clockwise to increase the tension or counterclockwise to decrease the tension. Tighten the set screws.
3. Measure the spindle tension again. Compare the tension reading on the spring scale with the appropriate force value provided in Figure 4-29. Repeat the adjustment procedure until the correct tension is obtained.

Spindle Maintenance

Felt washers at the ends of the spindles need to be replaced whenever they have dried out or deteriorated. When the felt washers require replacement, proper spindle tension may not be able to be achieved. Perform the following procedure to disassemble the spindles and replace the felt washers.

Preparing Replacement Felt Washers

1. Soak the replacement felt washers in silicone oil for approximately an hour.
2. Allow excess oil to drain from the felt washers.

NOTE: *If excess oil is not removed from the felt washers, the oil will disperse and deposit inside the printer.*

3. Use paper towels or other absorbent material and squeeze out any additional oil. When the felt washers have all excess oil removed, they are ready to be placed on the spindles.

Ribbon Supply Spindle



WARNING:

WEAR PROTECTIVE EYE WEAR WHEN REMOVING E-RINGS, C-CLIPS, SNAP RINGS AND SPRINGS. ALL OF THESE ARE UNDER TENSION AND COULD FLY OFF WHILE BEING REMOVED.

1. Refer to Figure 4-31. Carefully remove and retain the C-clip near the end of the shaft.

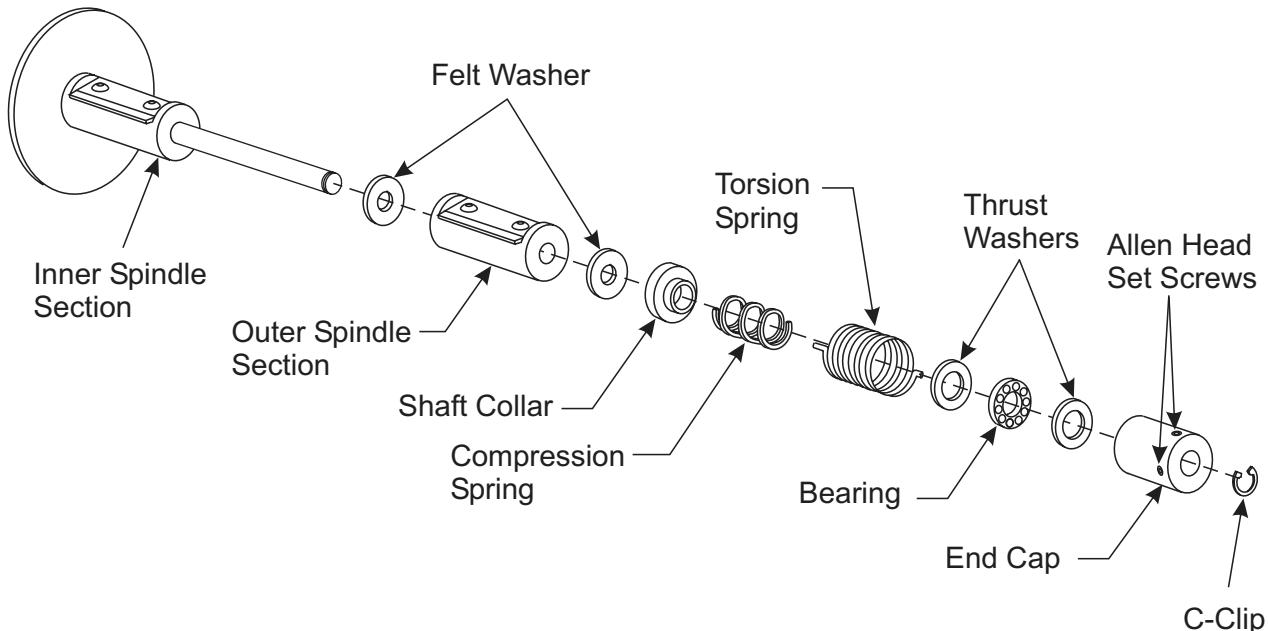


Figure 4-31. Ribbon Supply Spindle Maintenance

2. Loosen the two set screws that secure the end cap.

NOTE: *The compression spring, torsion spring, bearing, and two thrust washers are free to fall when the end cap is removed.*

3. Carefully slide the end cap, complete with the springs, thrust washers, and bearing off the end of the shaft.
4. Remove the shaft collar.
5. Remove and discard the felt washer.
6. Slide the outer spindle section off the shaft.
7. Remove and discard the felt washer.
8. Slide the felt washer with the smaller inside diameter onto the shaft until it rests against the inner spindle section.
9. Slide the outer spindle section onto the shaft.
10. Install the outer felt washer onto the shaft collar, making sure it is seated on the lip of the collar.

11. Slide the shaft collar onto the shaft.
12. Install the thrust washers, bearing, and compression spring into the end cap.
13. Place the torsion spring into the end cap, making sure that the end of the spring extends through the small hole in the end of the cap.
14. Slide the end cap onto the shaft and insert the other end of the spring into the hole in the shaft collar.

NOTE: *The farther onto the shaft the end cap is placed the greater the spindle tension.*

15. Perform the “Spindle Tension Adjustment” on page 4-39. When the tension is correct, tighten the two set screws to secure the end cap.
16. Reinstall the C-clip into the groove near the end of the shaft.

Ribbon Take-Up and Rewind Spindles

NOTE: *The ribbon take-up spindle is shown in Figure 4-32. The replacement procedure for the felt washers is the same for the ribbon take-up spindle and the rewind spindles.*

1. Loosen the two set screws that secure the adjustment nut to the shaft.

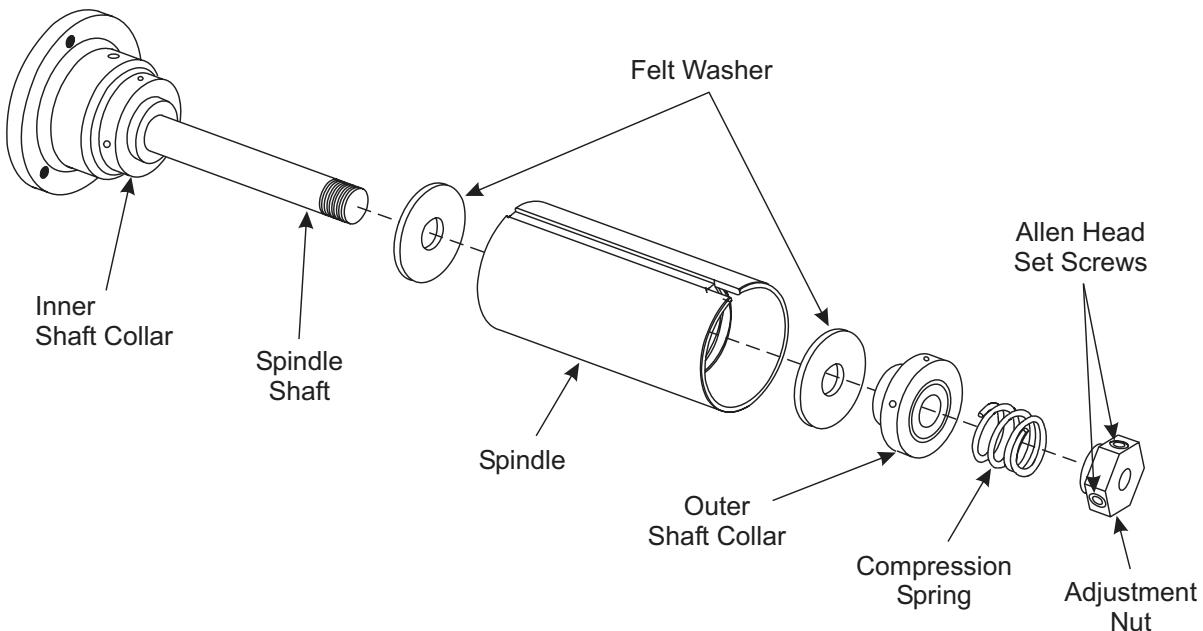


Figure 4-32. Ribbon Take-Up Spindle Maintenance

NOTE: *As the nut is being removed, the spindle may begin to turn with it. To hold the shaft, refer to Figure 4-27 and insert an Allen wrench through the access hole on the inner end of the spindle and into the set screw in the shaft collar. DO NOT TURN THE ALLEN WRENCH. Hold the shaft in place while removing the adjustment nut.*

2. Remove the adjustment nut and spring.

3. Slide the outer shaft collar off the shaft.
4. Remove and discard the felt washer.
5. Slide the spindle off the shaft.
6. Remove and discard the felt washer.
7. Slide the inner felt washer onto the shaft and insert it onto the lip of the inner shaft collar.
8. Slide the spindle onto the shaft.
9. Install the outer felt washer onto the outer shaft collar, making sure it is seated on the lip.
10. Slide the shaft collar and spring onto the shaft.

NOTE: *The farther onto the shaft the adjustment nut is threaded the greater the spindle tension.*

11. Thread the adjustment nut onto the shaft until it is approximately in the original position.
12. Perform the “Spindle Tension Adjustment” on page 4-39. Thread the adjusting nut until the tension is correct, and tighten the two set screws to secure the nut.

Platen Roller Replacement

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (**O**) position and disconnect the AC power cord. Disconnect the data cables.
2. Open the media cover.
3. Open the printhead and remove the media and ribbon. Close the printhead.
4. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
5. Refer to RRP No. 9 on page 4-23 and remove the main drive belt.
6. Refer to Figure 4-33 and loosen, but do not remove, the two set screws in the platen roller pulley.
7. Pull the platen roller pulley and spacer off of the platen roller shaft.
8. When facing the front of the printer, slide the platen roller to the right. Remove the C-clip, washer, and right bearing from the platen roller.
9. Slide the platen roller as far to the left as possible to free the right end from the side plate. Remove the platen roller.

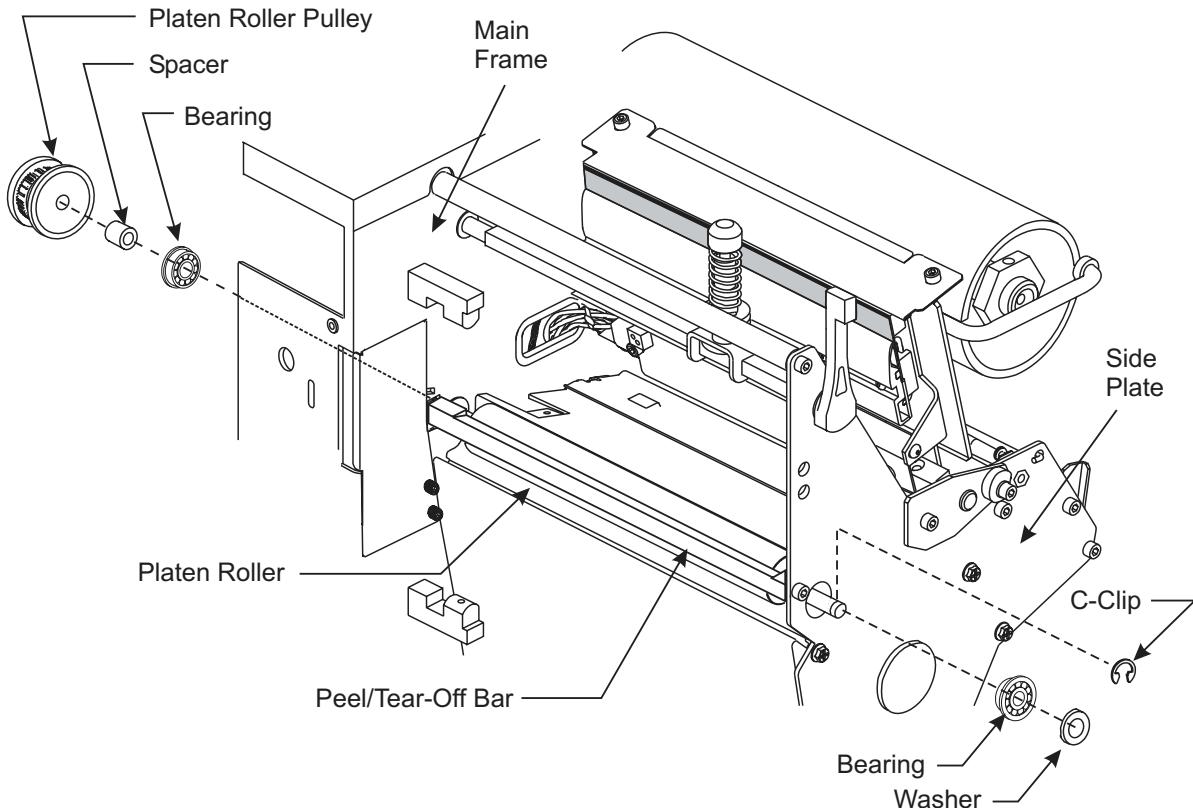


Figure 4-33. Platen Roller Removal



CAUTION:

Never reuse the old bearings. Use only the new bearings that were provided with the replacement platen roller.

10. Orient the replacement platen roller so that the end of the roller with the flats for the pulley is on the left side when facing the front of the printer.
11. Insert the left end of the shaft into the hole in the main frame. Then, place the right side end of the roller through the side plate.
12. Note the correct orientation of the new bearings. Install the new bearing and the washer on the right of the platen roller. Secure the bearing and washer with the C-clip.
13. Install a new bearing, the spacer, and the pulley on the end of the platen roller with the two flats.
14. Ensure that both set screws in the platen roller pulley align with the flats on the platen roller shaft.
15. Adjust the platen roller pulley on the left side of the platen roller shaft. Leave approximately a 0.020" (0.5 mm) gap between the spacer and the platen roller pulley.
16. Tighten the two set screws to secure the pulley to the shaft.
17. Reinstall and adjust the main drive belt.

18. Replace the electronics cover.
19. Reinstall the media and ribbon. Close the printhead.
20. Close media cover.
21. Reconnect the data cables and the power cord.
22. Reconnect the power cable to the power source. Place the power switch in the On (**I**) position.

Lower Peel Roller

Remove and Replace the Lower Peel Roller

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (**O**) position and disconnect the AC power cord. Disconnect the data cables.
2. Open the media cover.
3. Open the printhead. Remove the media and ribbon. Close the printhead.
4. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
5. Refer to RRP No. 9 on page 4-23 and remove the main drive belt.
6. For printers with configuration number 10500-0XXX-XXXX or 10500-1XXX-XXXX, refer to RRP No. 3 on page 4-13 and remove the DC power supply.

or

For printers with configuration number 10500-2XXX-XXXX or 10500-3XXX-XXXX, refer to RRP No. 5 on page 4-16 and remove the AC/DC power supply.

7. Refer to RRP No. 9 on page 4-23 and remove the rewind drive belt.
8. Refer to Figure 4-34 and loosen, but do not remove, the two set screws in the peel-roller pulley assembly.
9. Slide the peel roller pulley off the peel roller shaft.
10. Remove the small spacer and bearing.
11. Push the lower peel roller to the right.

NOTE: *Do not remove the roller adjust plate unless it is damaged, twisted, or bent. If the adjust plate is removed, the alignment is lost, and an adjustment procedure will need to be performed.*

12. Remove the C-clip and bearing from the end of the platen roller.
13. Slide the peel roller as far to the left as possible to free the right end from the adjust plate. Remove the peel roller.

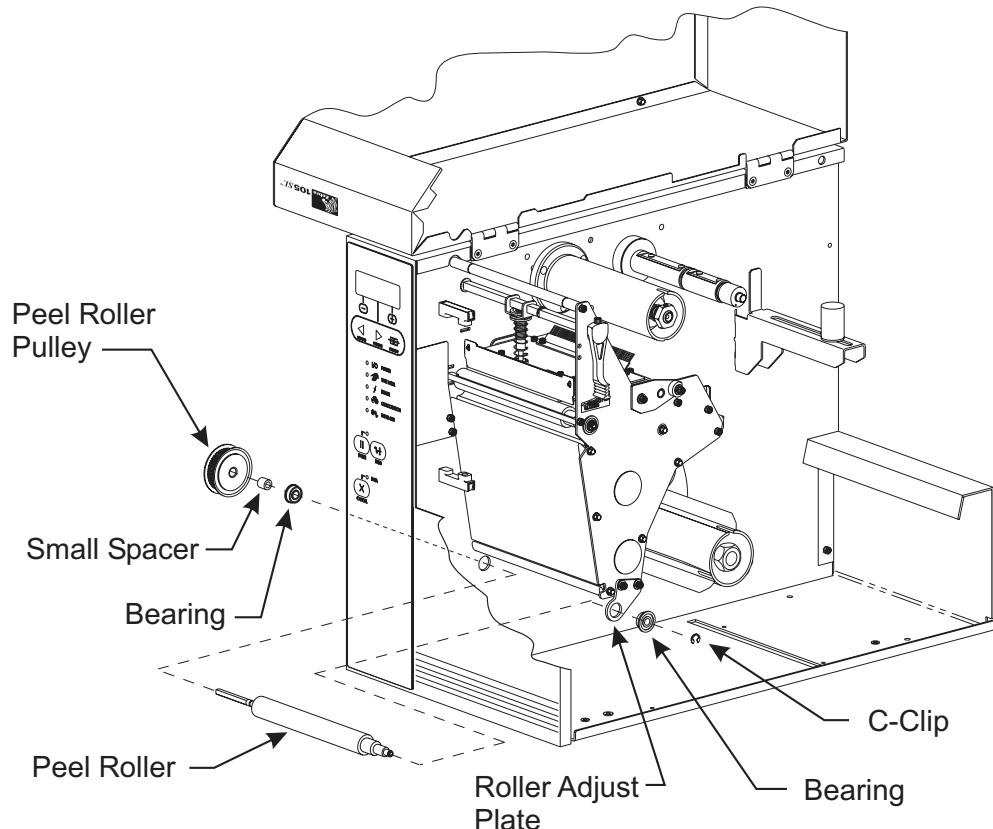


Figure 4-34. Peel Roller Kit Parts



CAUTION:

Never reuse the old bearings. Use only the new bearings that were provided with the replacement platen roller.

14. Insert the long shaft end of the new peel roller through the hole in the main frame of the printer. Work the short shaft end through the roller adjust plate.
15. Install a new bearing on the roller adjust plate with the flange of the bearing on the outside of the adjust plate. Install the C-clip in the groove on the end of the roller shaft. Slide the peel roller to the left to seat the bearing into the adjust plate.
16. Install a new bearing, the spacer, and the pulley on the long end of the platen roller.
17. Ensure that both set screws in the platen roller pulley align with flats on the platen roller shaft.
18. Adjust the peel roller pulley on the left side of the peel roller shaft. Leave approximately a 0.020" (0.5 mm) gap between the spacer and the peel roller pulley.
19. Tighten the two set screws to secure the pulley to the shaft.
20. Reinstall and adjust the rewind drive belt.
21. Reinstall and adjust the main drive belt.
22. Reinstall the DC power supply or the AC/DC power supply, depending on configuration.

23. Replace the electronics cover.
24. Reinstall the media and ribbon. Close the printhead.
25. Close the media cover.
26. Reconnect the data cables and the power cord.
27. Reconnect the power cable to the power source. Place the power switch in the On (**I**) position.
28. Perform a PAUSE Key Self Test and observe the tracking of the rewind drive belt and the tracking of the label backing material. If you didn't move the roller adjust plate, and the label backing material was tracking correctly before, no further adjustment is necessary. If you moved the roller adjust plate, you have to readjust it.

Adjusting the Roller Adjust Plate

If the label backing material is tracking off to one side, perform the following procedure to position the roller adjust plate.

1. Refer to Figure 4-34. Loosen, but do not remove, the two screws holding the roller adjust plate to the side plate.

NOTES: *Moving the roller adjust plate toward the front of the printer moves the label backing material away from the roller adjust plate. Moving the roller adjust plate toward the rear of the printer moves the label backing material towards the roller adjust plate.*

2. Move the roller adjust plate to compensate for the tracking.
3. Tighten the two head screws. Check label backing tracking again.
4. Repeat the procedure until the required results are achieved.

Front Membrane Switch Replacement

Remove the Old Membrane Switch and Front Panel

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (**O**) position and disconnect the AC power cord. Disconnect the data cables.
2. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
3. For printers with configuration number 10500-0XXX-XXXX or 10500-1XXX-XXXX, refer to RRP No. 3 on page 4-13 and remove the DC power supply.

or

For printers with configuration number 10500-2XXX-XXXX or 10500-3XXX-XXXX, refer to RRP No. 4 on page 4-14 and remove the AC/DC power supply.

4. Refer to Figure 4-35 and remove the two ribbon cables from the LCD PCB at the top back of the membrane switch panel.
5. If a ferrite bead is present, remove it by peeling it off the front panel.
6. Remove the nut securing the ground strap to frame.
7. Refer to Figure 4-36 and remove three nuts securing front panel. Remove front panel with membrane switch attached.

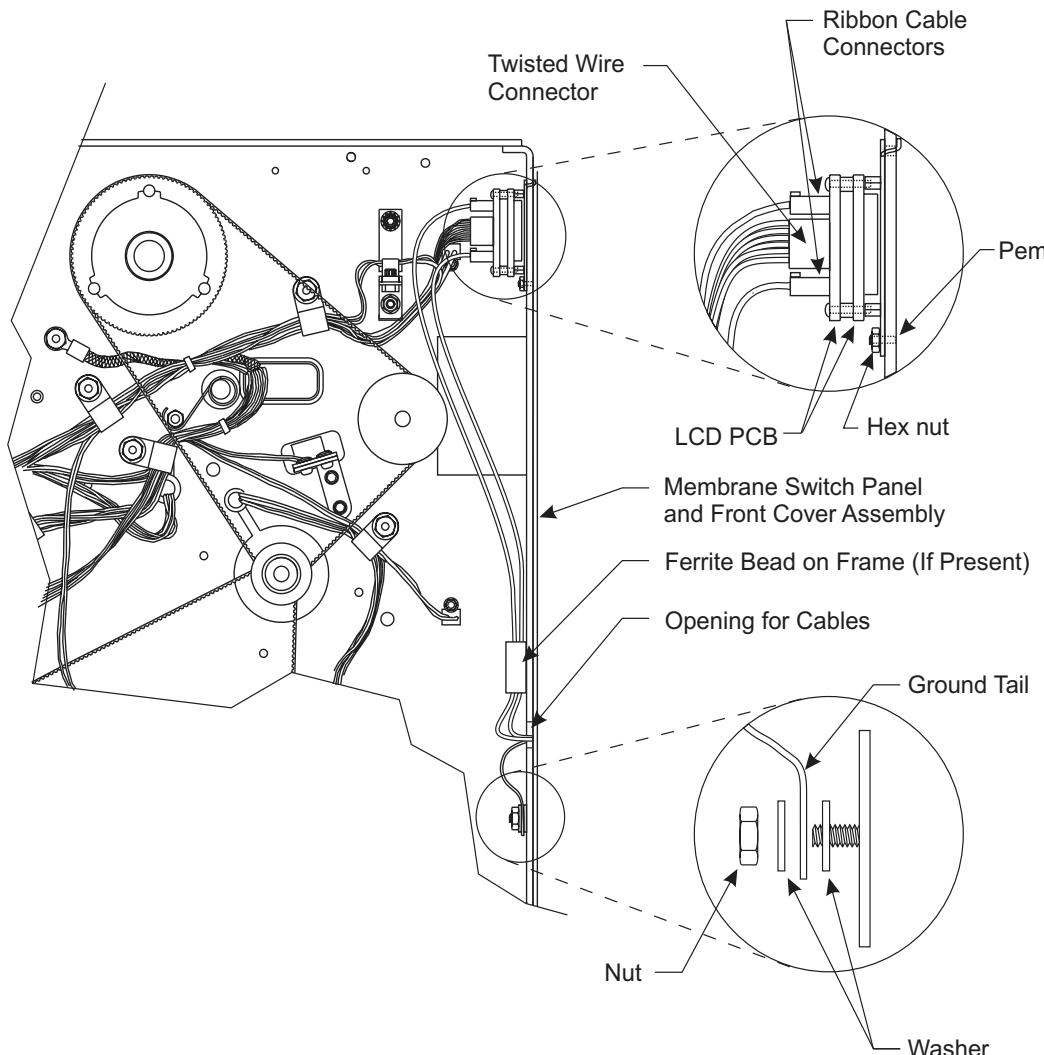


Figure 4-35. Membrane Switch and Front Panel

Install the New Membrane Switch and Front Panel

1. Insert two ribbon cables and ground cable through hole in front of printer.
2. Position the new membrane switch and front panel to the front of printer. Reinstall three hex nuts to secure the switch and panel onto the printer.

NOTE: *The ground strap can be easily torn if not handled carefully.*

3. Reconnect the ground strap to the printer between the two flat washers. Carefully secure them with the hex nut.
4. Connect the ribbon cable connectors to the back of the LCD PCB.
5. Use the foam tape and bead clip to reattach the new ferrite bead. Position it as shown in Figure 4-35.
6. Reinstall the DC power supply or the AC/DC power supply, depending on configuration.
7. Replace the electronics cover.
8. Reconnect the data cables and the power cord.

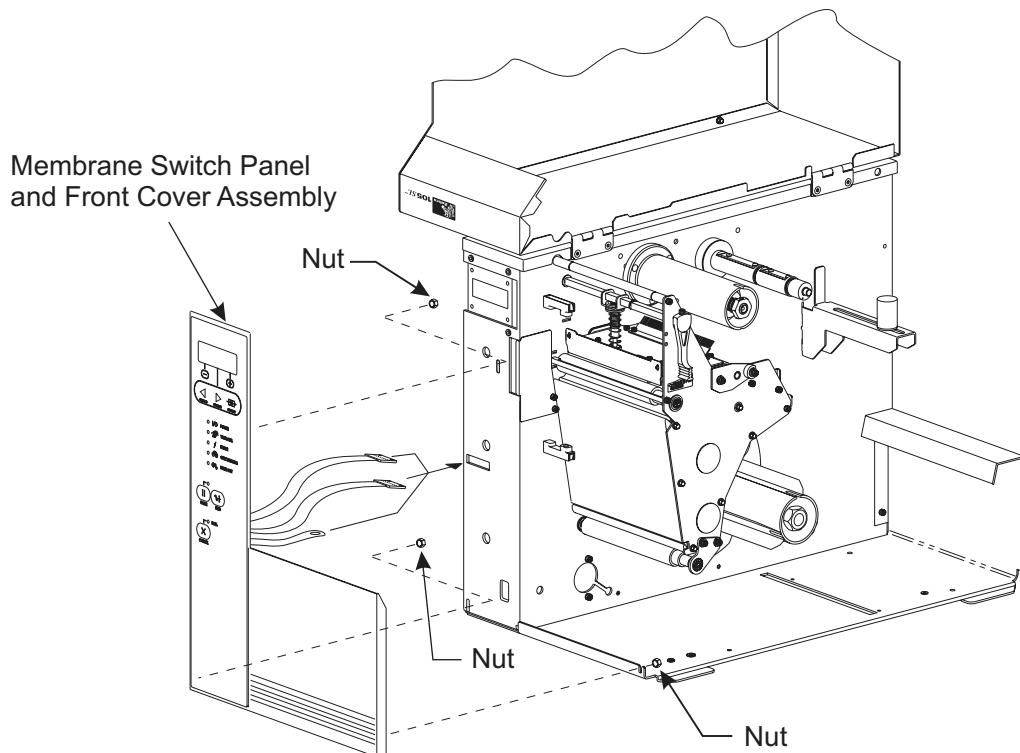


Figure 4-36. Remove/Install Membrane Switch and Front Panel Assembly

9. Reconnect the power cable to the power source. Place the power switch in the On (**I**) position.
10. If your printer completes the Power-On Self Test, you have successfully installed the membrane switch and front panel. If not, make sure that the connectors are fully seated. Check that the pins of the connectors are not bent.

LCD Assembly

Remove the LCD Assembly

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (**O**) position and disconnect the AC power cord. Disconnect the data cables.
2. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
3. Refer to Figure 4-37. Remove two ribbon cable connectors and one twisted wire connector from the LCD PCB.
4. Remove the nut attaching the PCB and LCD to the printer.
5. Remove the old LCD assembly by rotating it up and away from the front frame.

Install the New LCD Assembly

1. Position the new LCD with mounting bracket assembly at the top of the front frame.
2. Rotate the top lip of the LCD bracket into the slot in the frame.
3. Engage the mounting PEM into the slot in the lower portion of the LCD bracket.
4. Secure the LCD assembly with the hex nut.

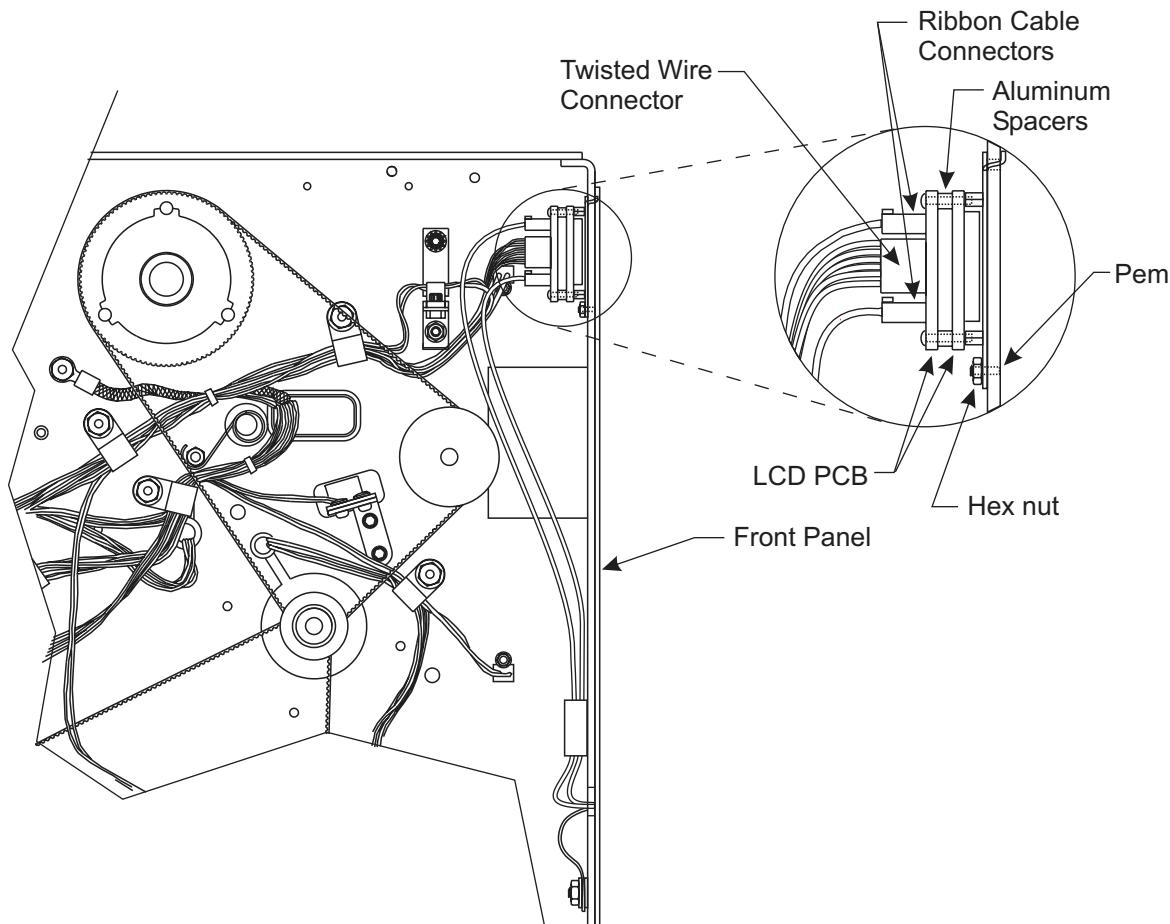


Figure 4-37. LCD PCB Removal/Installation

5. Connect the twisted wire connector to the LCD PCB.
6. Connect the two ribbon cable connectors to the LCD PCB.
7. Replace the electronics cover.
8. Reconnect the data cables and the power cord.
9. Reconnect the power cable to the power source. Place the power switch in the On (I) position.
10. If your printer completes the Power-On Self Test, you have successfully installed the LCD. If not, make sure that the connectors are fully seated. Check that the pins of the connectors are not bent.

Media Supply Hanger

Remove the Media Supply Hanger

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (O) position and disconnect the AC power cord. Disconnect the data cables.
2. Open the media cover.
3. Open the printhead and remove the media and ribbon. Close the printhead
4. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.

5. For printers with configuration number 10500-0XXX-XXXX or 10500-1XXX-XXXX, refer to RRP No. 6 on page 4-18 and remove the Main Logic Board. Refer to RRP No. 4 on page 4-14 and remove the AC power supply.

or

For printers with configuration number 10500-2XXX-XXXX or 10500-3XXX-XXXX, refer to RRP No. 7 on page 4-20 and remove the Main Logic Board.
6. Refer to Figure 4-38. Using a heavy pair of pliers, straighten out the mounting tabs of the old media supply hanger.

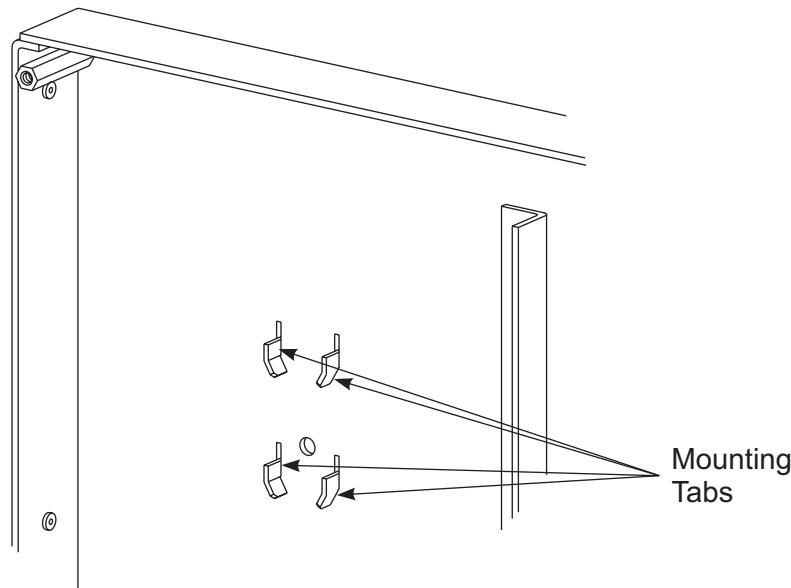


Figure 4-38. Media Supply Hanger Tabs

7. Remove the old hanger.

Install Media Supply Hanger

1. Refer to Figure 4-39. Insert the new media supply hanger from the right hand side of the printer.
2. Using a heavy pair of pliers, bend the mounting tabs of the new media supply hanger.
3. For printers with configuration number 10500-0XXX-XXXX or 10500-1XXX-XXXX, reinstall the AC power supply.
4. Reinstall the main logic board.
5. Refer to Figure 4-4, the Printer Interconnection Diagram, and if you removed the connectors from the main logic board, reconnect them. Make sure they go back into the correct positions as shown.
6. Reinstall the electronics cover.
7. Open the printhead. Reload the ribbon and media. Close the printhead.
8. Close the media cover.
9. Reconnect the data cables and the power cord.

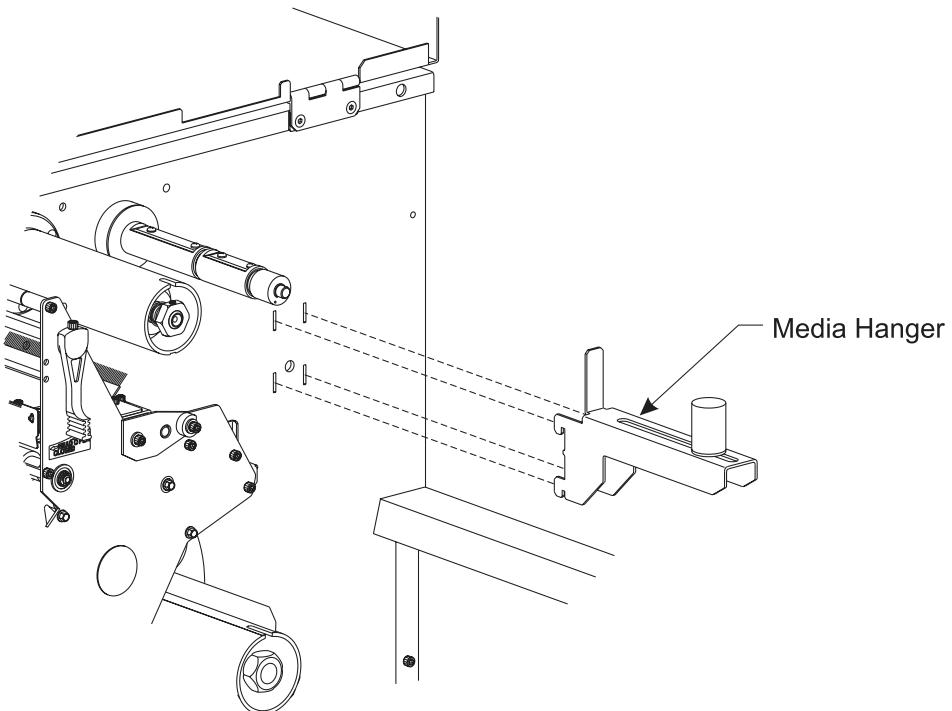


Figure 4-39. Media Supply Hanger Installation

10. Reconnect the power cable to the power source. Place the power switch in the On (I) position.

AC Power Fuse Replacement

The 105SL printer uses a metric-style fuse, 5 x 20 mm IEC, rated at F5A, 250V. The end caps of the fuse must bear the certification mark of a known international safety organization as shown in Figure 4-40.

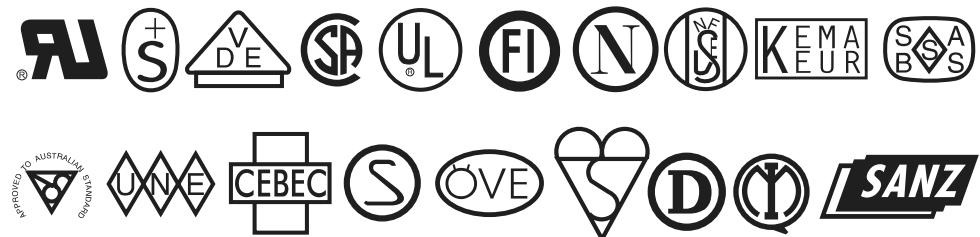
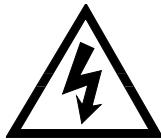


Figure 4-40. International Safety Organizations

Printer Configurations 10500-0XXX-XXXX and 10500-1XXX-XXXX

The AC power entry module comes with two approved fuses in the fuse holder: one is “In-Circuit” and the second is provided as a “spare”. Refer to Figure 4-41.

To replace a faulty fuse, use the following procedure.

**WARNING:**

TURN THE PRINTER'S AC POWER SWITCH OFF AND DISCONNECT THE PRINTER'S AC POWER CABLE BEFORE REPLACING ANY FUSES.

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (O) position and disconnect the AC power cord.
2. Refer to Figure 4-41. Using a small blade screwdriver or similar tool, remove the fuse holder that is part of the AC power entry module at the rear of the printer.

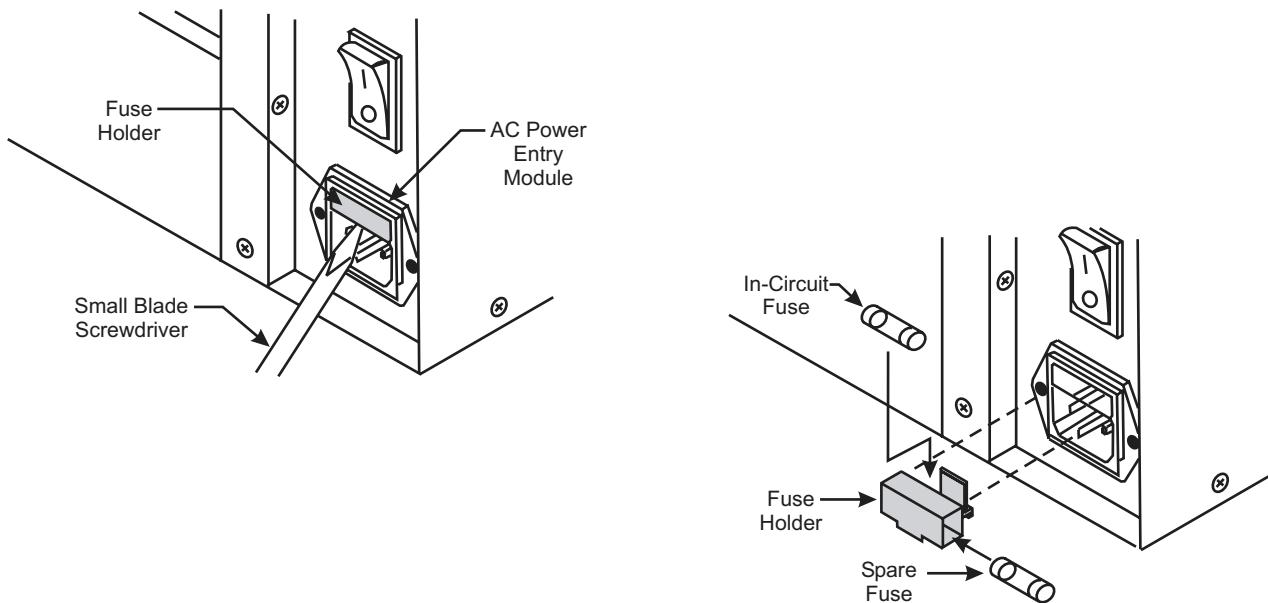


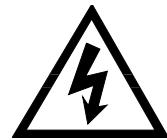
Figure 4-41. AC Power Fuse Replacement 10500-0XXX-XXXX and 10500-1XXX-XXXX

3. Remove the faulty fuse and install a new fuse in the "In-Circuit" position. If you use the spare fuse, be sure to order a new replacement fuse. Fuses can be ordered from your Zebra distributor.
4. Snap the fuse holder back into the AC power entry module.
5. Reconnect the power cable to the power source. Place the power switch in the On (I) position.

NOTE: *If AC power is not restored to the printer, make sure that the power cable is connected to a live power source. If the power source is live and the printer does not power on, the AC power supply might have failed.*

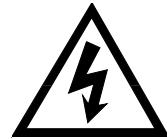
Printer Configurations 10500-2XXX-XXXX and 10500-3XXX-XXXX

The AC fuse is located on the power supply. To replace a faulty fuse, use the following procedure.



WARNING:
TURN THE PRINTER'S AC POWER SWITCH OFF AND DISCONNECT THE PRINTER'S AC POWER CABLE BEFORE REPLACING ANY FUSES.

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (O) position and disconnect the AC power cord.
2. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.



WARNING:
CERTAIN COMPONENTS LOCATED UNDER THE INSULATION SHIELD
CAN STORE A RESIDUAL CHARGE FOR AS LONG AS TEN MINUTES
AFTER POWER HAS BEEN REMOVED. USE EXTREME CARE AROUND
THE POWER SUPPLY. HANDLE THE BOARD ONLY AROUND THE OUTER
EDGES.

3. Refer to Figure 4-42. Carefully unwrap the top of the insulation shield away from the AC/DC Power Supply to gain access to the fuse.

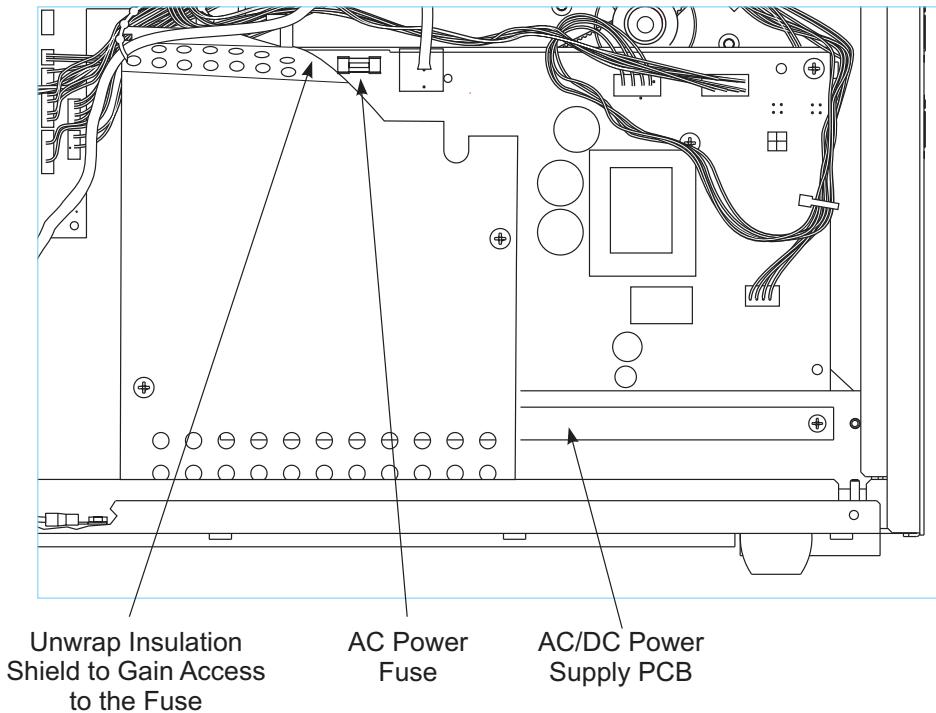


Figure 4-42. AC Power Fuse Replacement 10500-2XXX-XXXX and 10500-3XXX-XXXX

4. Remove the faulty fuse from the fuse holder and install a new fuse. Fuses can be ordered from your Zebra distributor.

5. Fold the top of the insulation shield back into place and dress the harness so it does not interfere with the reinstallation of the electronics cover.
6. Reinstall the electronics cover.
7. Reconnect the power cable to the power source. Place the power switch in the On (**I**) position.

NOTE: *If AC power is not restored to the printer, make sure that the power cable is connected to a live power source. If the power source is live and the printer does not power on, the AC/DC power supply might have failed.*

Cutter Components

Cutter Main Link Replacement

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (**O**) position and disconnect the AC power cord. Disconnect the data cables.
2. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
3. For printers with configuration number 10500-0XXX-XXXX or 10500-1XXX-XXXX, refer to RRP No. 3 on page 4-13 and remove the DC power supply.

or

For printers with configuration number 10500-2XXX-XXXX or 10500-3XXX-XXXX, refer to RRP No. 5 on page 4-16 and remove the AC/DC power supply.

WARNING:



WEAR PROTECTIVE EYE WEAR WHEN REMOVING E-RINGS, C-CLIPS, SNAP RINGS AND SPRINGS. ALL OF THESE ARE UNDER TENSION AND COULD FLY OFF WHILE BEING REMOVED.

4. Refer to Figure 4-43. Remove the E-ring that attaches the cutter main link to the short arm side of the cutter slotted link.
5. Remove the E-ring that attaches the cutter main link to the arm on the cutter assembly.
6. Ensure that the pivot pin remains in the slotted link, and remove the cutter main link.

NOTE: *The notch in the main link must be at the top and face toward the back of the printer.*

7. Position the new cutter main link to the cutter assembly and the pivot pin in the slotted link.
8. Secure both ends with E-rings.
9. Reinstall the DC power supply or the AC/DC power supply, depending on configuration.
10. Reinstall the electronics cover.
11. Reconnect the data cables and the power cord.
12. Reconnect the power cable to the power source. Place the power switch in the On (**I**) position.

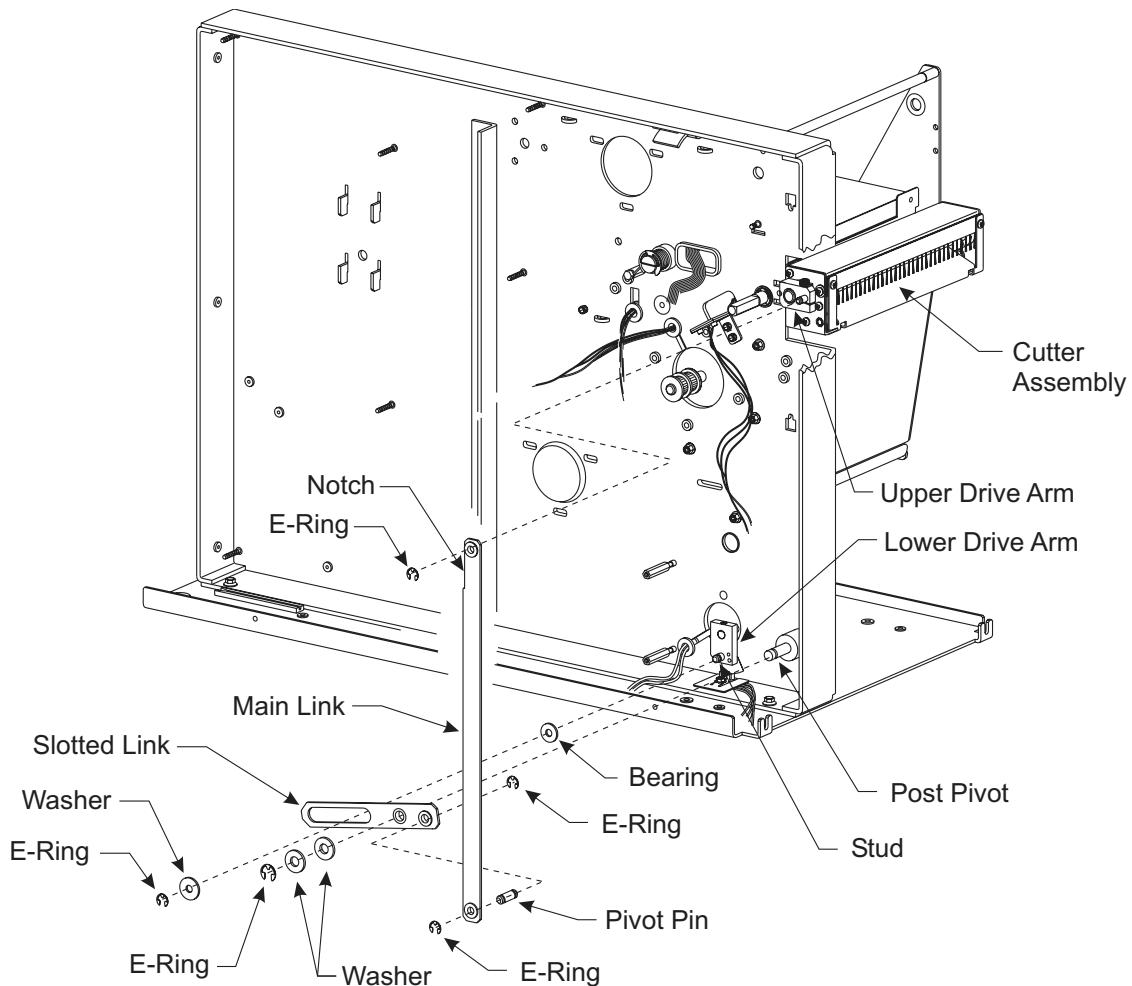


Figure 4-43. Cutter Main Link and Slotted Removal and Installation

Cutter Slotted Link Replacement

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (O) position and disconnect the AC power cord. Disconnect the data cables.
2. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
3. For printers with configuration number 10500-0XXX-XXXX or 10500-1XXX-XXXX, refer to RRP No. 3 on page 4-13 and remove the DC power supply.

or

For printers with configuration number 10500-2XXX-XXXX or 10500-3XXX-XXXX, refer to RRP No. 5 on page 4-16 and remove the AC/DC power supply.



WARNING:

WEAR PROTECTIVE EYE WEAR WHEN REMOVING E-RINGS, C-CLIPS, SNAP RINGS AND SPRINGS. ALL OF THESE ARE UNDER TENSION AND COULD FLY OFF WHILE BEING REMOVED.

4. Refer to Figure 4-43. Remove the E-ring that attaches the cutter main link to the mounting pin in the cutter slotted link.
5. Remove the E-ring, flat washer and bearing that attach the cutter slotted link to the pin on the lower drive arm.
6. Remove the E-ring and two flat washers that attach the cutter slotted link to the pivot post.
7. Remove the slotted link.
8. Position the new slotted link as shown in Figure 4-43.
9. Attach the slotted link to the post pivot with two flat washers and the E-ring.
10. Install the bearing onto the lower drive arm. Place the slot in the slotted link over the bearing. Secure the link with a washer and E-ring.
11. Attach the main link to the pivot pin of the new slotted link with the E-ring.
12. Apply a small amount of white lithium grease to the slot in the slotted link where the bearing will ride. Remove any excess grease to prevent it from spreading to the cutter optical sensor.
13. Reinstall the DC power supply or the AC/DC power supply, depending on configuration.
14. Reinstall the electronics cover.
15. Reconnect the data cables and the power cord.
16. Reconnect the power cable to the power source. Place the power switch in the On (**I**) position.

Cutter PCB Replacement

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (**O**) position and disconnect the AC power cord. Disconnect the data cables.
2. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
3. For printers with configuration number 10500-0XXX-XXXX or 10500-1XXX-XXXX, refer to RRP No. 3 on page 4-13 and remove the DC power supply.

or

For printers with configuration number 10500-2XXX-XXXX or 10500-3XXX-XXXX, refer to RRP No. 5 on page 4-16 and remove the AC/DC power supply.

4. Disconnect all cables from the cutter PCB.
5. Refer to Figure 4-44 and remove the four screws that secure the cutter PCB to the pems.
6. Remove and discard the old cutter PCB.

CAUTION:



**OBSERVE PROPER ELECTROSTATIC SAFETY PRECAUTIONS WHEN
HANDLING ANY STATIC-SENSITIVE COMPONENTS SUCH AS PRINTED
CIRCUIT BOARDS AND PRINTHEADS.**

7. Remove the new cutter PCB from anti-static bag and position it onto the pems.

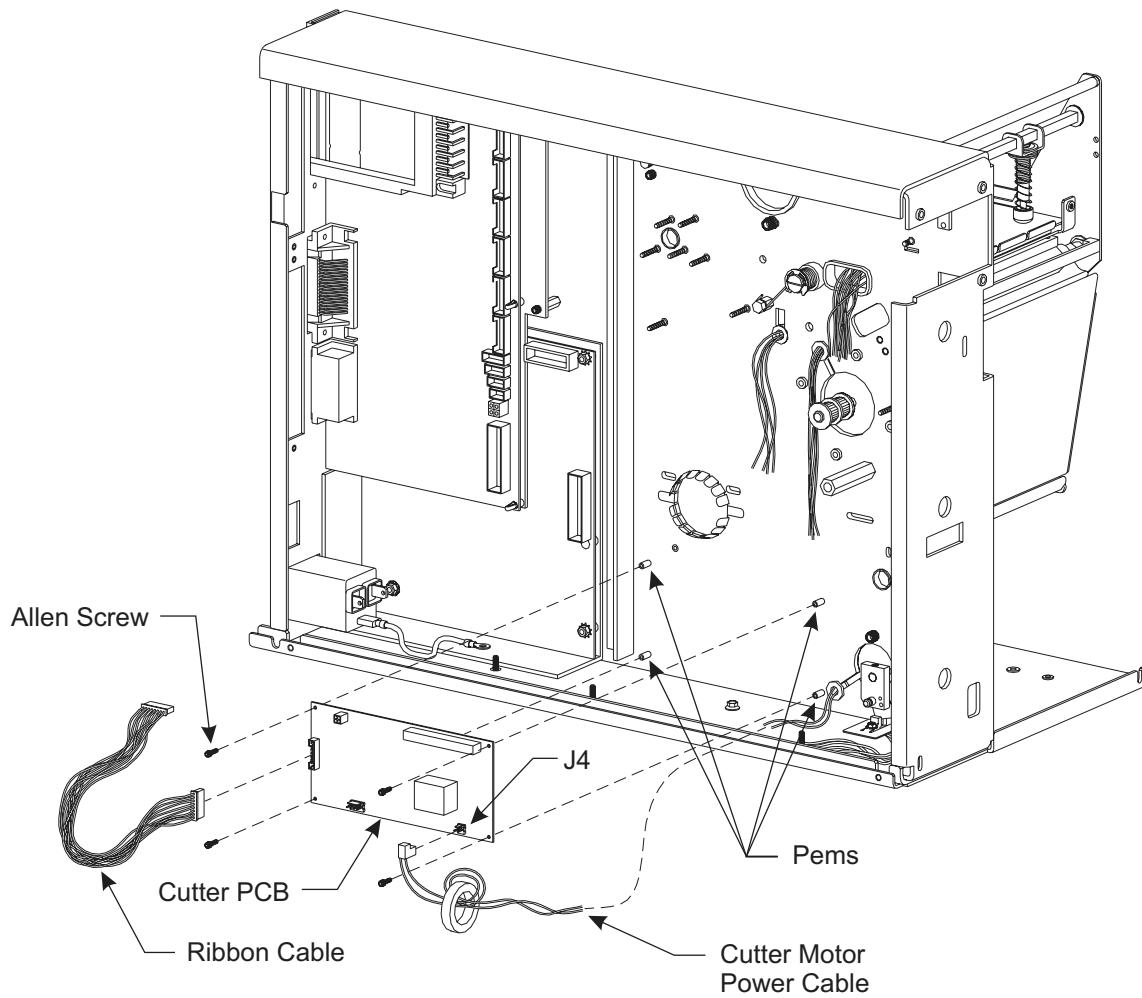


Figure 4-44. Cutter PCB Removal and Installation

8. Refer to Figure 4-45. Attach the cutter power cable to connector J2 on the new cutter board.
9. Attach the cutter data cable to connector J1 on the new cutter PCB.

NOTE: *The cutter motor leads have a polarized connector.*

10. Route the cutter stepper motor wires between the two right hand pems and out under the bottom of the new cutter PCB. Attach the motor wires to connector J4 on the new cutter PCB. Make sure the black lead is to the left.
11. Refer to Figure 4-44. Secure the new cutter PCB to the pems with four screws.
12. Refer to Figure 4-45. Plug the cutter optical sensor connector into the cutter optical connector J3 on the new cutter PCB.
13. Dress all the wires to ensure that during cutting no wiring touches any moving parts.

NOTE: *When the Cutter PCB is changed, the lower drive arm alignment must be checked.*

14. Proceed to "Lower Drive Arm Alignment" procedure.

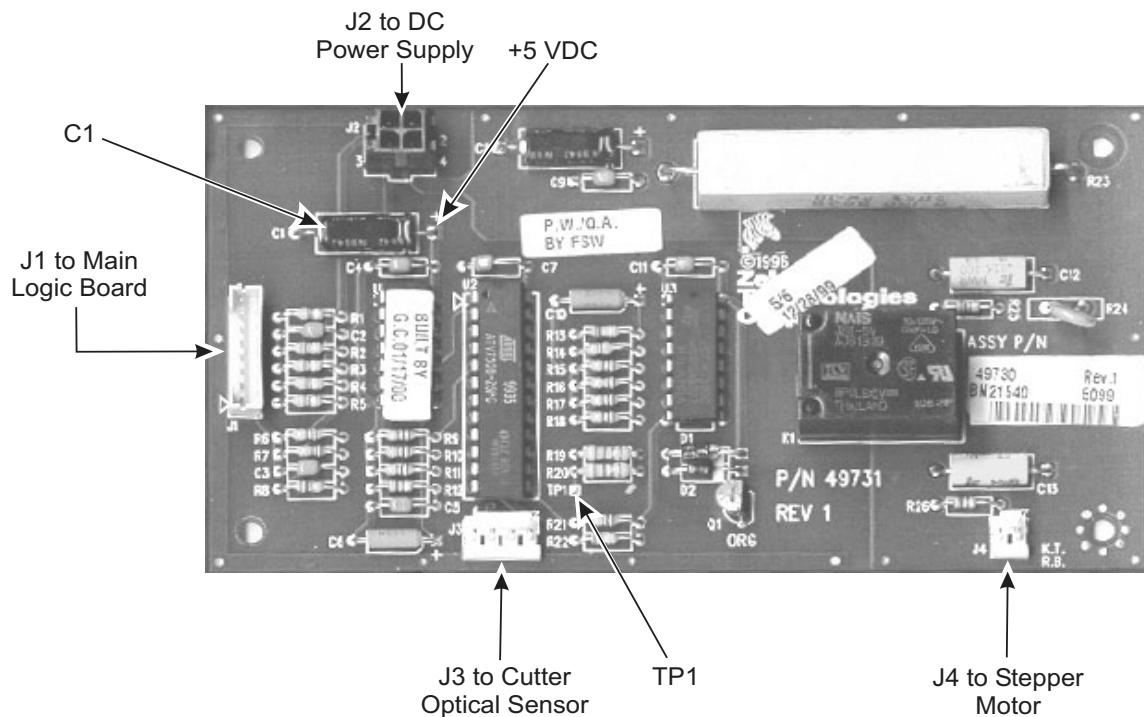


Figure 4-45. Cutter PCB Connections

Lower Drive Arm Alignment

The alignment of the lower drive arm must be checked and possibly adjusted any time the cutter PCB is replaced. To perform the lower drive arm mechanical alignment, some but not all cables must be connected between the power supply(ies), and the cutter PCB. In order to have access to the cutter PCB, the DC power supply must not be installed. Position the DC power supply so that the cables are connected but access to the cutter board is still possible.

1. For printer configurations 10500-0XXX-XXXX and 10500-1XXX-XXXX, refer to Figure 4-4 and connect **only** the following cables:

The power cable from J1 on the AC power supply to J1 on the DC power supply.

The power cable from J2 on the cutter PCB to J7 on the DC power supply.

The data ribbon cable from J1 on the cutter PCB to J10 on the main logic board.

or

For printer configurations 10500-2XXX-XXXX and 10500-3XXX-XXXX, refer to Figure 4-5 and connect **only** the following cables:

The power cable from J2 on the cutter PCB to J6 on the AC/DC power supply.

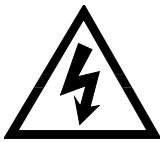
The power cable from J1 on the AC/DC power supply to P25 on the main logic board.

The data cable from J1 on the cutter PCB to P31 on the main logic board (P32 may be used if it is open).

NOTE: *Locate the removed power supply as far out of the way as the connected leads allow.*

2. For printer configurations 10500-2XXX-XXXX and 10500-3XXX-XXXX, reinstall the insulation shield on the AC/DC power supply.

WARNING:



USE EXTREME CARE WHEN WORKING NEAR LIVE POWER. THE POWER SUPPLIES ARE LIVE AND HAVE POTENTIALLY LETHAL CURRENT. KEEP CLEAR OF THE POWER SUPPLY WHEN WORKING WITH THE CUTTER COMPONENTS. SOURCE VOLTAGE CAN CAUSE SERIOUS INJURY OR DEATH.

3. Reconnect the AC power cord. Reconnect the power cable to the power source. Place the power switch in the On (**I**) position.
4. The cutter motor starts. Wait for it to stop.

NOTE: *The cutter motor must be rotated until the two flat surfaces of the cutter motor shaft are aligned with the set screws in the lower drive arm, while the lower drive arm is in a vertical position. When the lower drive arm is in a vertical position, the sensor flag is down.*

5. Refer to Figure 4-45. Attach a test clip at one end of a jumper cable to the lead on the right end of capacitor C1 (+5 VDC SOURCE) on the cutter board.
6. Briefly, touch the test clip at the other end of the jumper cable to test point TP1 on the cutter PCB to “jog” the cutter motor to the desired position.
7. Position the lower drive arm so the sensor flag is centered between the front and back portions of the optical sensor, then tighten the two set screws to 20 inch-pounds (2.3 N·m).

NOTE: *The set screws must be very tight to ensure proper operation of the cutter mechanism.*

8. Activate the cutter motor. Make certain the sensor flag travels through the slot in the optical sensor without touching it.
9. Place the power switch in the Off (**O**) position.
10. Reinstall the DC power supply or the AC/DC power supply, depending on configuration.
11. Carefully connect the remaining cables/connectors to the power supply and verify proper placement and orientation.
12. Ensure that the power switch is in the Off (**O**) position. Reconnect the AC power cord. Connect the power cord to a live AC source. Place the power switch in the On (**I**) position. Enter configuration mode and set the printer for cutter mode. Save as PERMANENT and place the power switch in the Off (**O**) position.
13. Test the cutter for proper operation. Load media and ribbon, hold in the PAUSE key while turning the AC power on and run labels through the printer.

NOTE: *If the media hits either cutter blade or the cutter does not cut through the label material completely, proceed to “Upper Drive Arm Alignment,” before completing the installation.*

14. Reinstall the electronics cover.
15. Reconnect data cables. Place the power switch in the On (I) position.

Upper Drive Arm Alignment

If the media hits either cutter blade or if the cutter does not cut through the label material completely, the upper drive arm alignment must be checked.

NOTE: *The upper drive arm is part of the cutter mechanical assembly and has been aligned at the factory. If for some reason the position is altered, the following procedure may be used to realign the upper drive arm. The printer must be programmed to operate in the cutter mode prior to performing the following procedure.*

1. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
2. For printers with configuration number 10500-0XXX-XXXX or 10500-1XXX-XXXX, refer to RRP No. 3 on page 4-13 and remove the DC power supply.

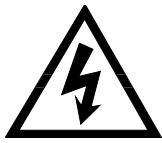
or

For printers with configuration number 10500-2XXX-XXXX or 10500-3XXX-XXXX, refer to RRP No. 5 on page 4-16 and remove the AC/DC power supply.

NOTE: *Locate the removed power supply as far out of the way as the connected leads allow.*

3. For printer configurations 10500-2XXX-XXXX and 10500-3XXX-XXXX, reinstall the insulation shield on the AC/DC power supply.

WARNING:

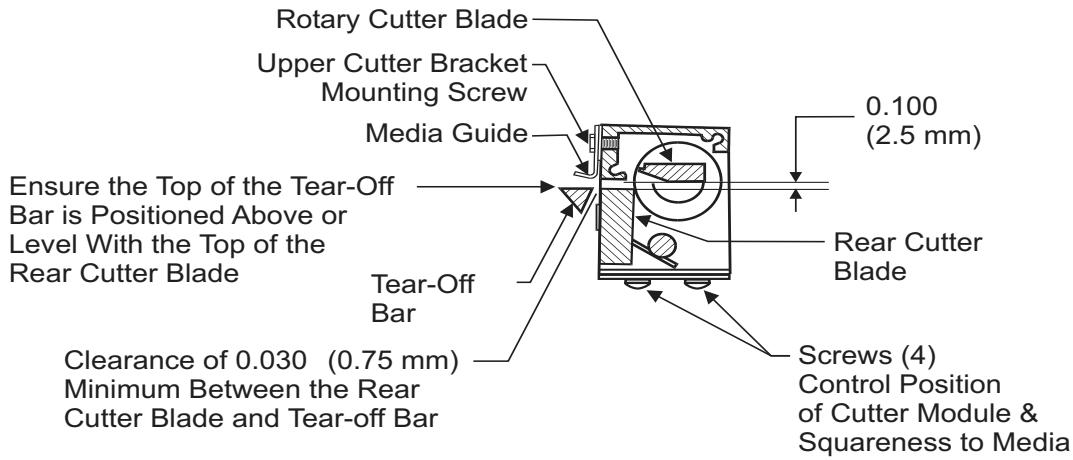


USE EXTREME CARE WHEN WORKING NEAR LIVE POWER. THE POWER SUPPLIES ARE LIVE AND HAVE POTENTIALLY LETHAL CURRENT. KEEP CLEAR OF THE POWER SUPPLY WHEN WORKING WITH THE CUTTER COMPONENTS. SOURCE VOLTAGE CAN CAUSE SERIOUS INJURY OR DEATH.

4. Reconnect the AC power cord. Reconnect the power cable to the power source. Place the power switch in the On (I) position.
5. Refer to Figure 4-43. Loosen the screw that clamps the upper drive arm to the rotary cutter blade shaft. The drive arm may be snug on the shaft.
6. Apply power to the printer. The lower drive arm of the drive link assembly should rotate once and stop when the sensor flag activates the optical sensor.

NOTE: *If the gap between the cutting edges is too large, the cutter may not cut properly across the entire media width. If the gap is too small, the media may catch on the rotary cutter blade edge and cause a jam.*

7. After the drive link assembly stops, hold the upper drive arm in position and adjust the rotary cutter blade so that the gap between the cutting edge on the left end and the cutting edge of the rear cutter blade is approximately 0.100" (2.5 mm), as shown in Figure 4-46.



Relative position of the Rotary Cutter Blade when the Drive Link Assembly is stopped by the Optical Sensor, when the Power is on in Cutter Mode

Figure 4-46. Mechanical Assembly Positioning

8. Position the upper drive arm out from the cutter frame so its flat surface is flush with the end of the rotary cutter blade shaft.

NOTE: *Overtightening the screw can damage the drive arm and strip the threads.*

9. Use a 5/16" Allen socket on a torque wrench and tighten the screw until the slot closes or until a torque of 100 inch-pounds (11.3 N·m) is achieved.
10. Test the cutter alignment by feeding maximum width label stock through the printer and ensuring that complete cutting of the label occurs. If necessary, repeat the procedure to achieve complete cutting of the labels.
11. With a felt tip pen, draw a line across the outer face of the upper drive arm and the end of the cutter blade shaft. If cutter operation problems occur, this mark shows if the alignment of the clamp and the cutter blade shaft has changed.

Cutter Motor Replacement

Removing the Cutter Motor

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (O) position and disconnect the AC power cord. Disconnect the data cables.
2. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
3. Open the media cover.
4. For printers with configuration number 10500-0XXX-XXXX or 10500-1XXX-XXXX, refer to RRP No. 3 on page 4-13 and remove the DC power supply.

or

For printers with configuration number 10500-2XXX-XXXX or 10500-3XXX-XXXX, refer to RRP No. 5 on page 4-16 and remove the AC/DC power supply.

5. Refer to Figure 4-44. On the electronics side of the printer, disconnect the cutter motor power cable from the cutter PCB connector J4. Loosen the screws that attach the cutter PCB. Remove the one Allen screw in the lower right corner of the cutter PCB so you can remove the cutter motor power lead.

WARNING:

WEAR PROTECTIVE EYE WEAR WHEN REMOVING E-RINGS, C-CLIPS, SNAP RINGS AND SPRINGS. ALL OF THESE ARE UNDER TENSION AND COULD FLY OFF WHILE BEING REMOVED.

6. Refer to Figure 4-43. On the electronics side of the printer, remove the E-ring, washer and bearing from the lower drive arm.
7. Remove the E-ring and two flat washers that attach the slotted link to the post pivot.
8. Remove the E-ring that attaches the slotted link to the main link. The slotted link should be removable now.

NOTE: *You may have to rotate the lower drive arm to gain access to both set screws.*

9. Loosen the two set screws that attach the lower drive arm to the cutter motor shaft.
10. Pivot the lower drive arm clockwise, as seen from the left side of the printer, until the lower drive arm flag disengages the optical sensor.
11. Remove the lower drive arm from the cutter motor shaft.
12. Remove the screws that attach the cutter motor to the main frame of the printer.
13. Refer to Figure 4-47. Pull the cutter motor away from the main frame. Remove the motor cable and grommet from the slot in the main frame.

Installing the Cutter Motor

1. Refer to Figure 4-47. Push the motor power lead through the slot in the main frame of the printer, from media side to electronics side.
2. Install the split grommet on the new motor power lead and into the hole in the main frame.
3. Position the new cutter motor to its mounting location.
4. Attach the motor to the main frame with the motor mounting screws.
5. Refer to Figure 4-44. Position the new cutter motor power lead behind the lower right corner of the cutter PCB. Install the screw in the lower right corner. Tighten all four screws.
6. Refer to Figure 4-47. Position the lower drive arm to the shaft of the new cutter motor.
7. Pivot the lower drive arm until the lower drive arm flag engages the optical sensor.

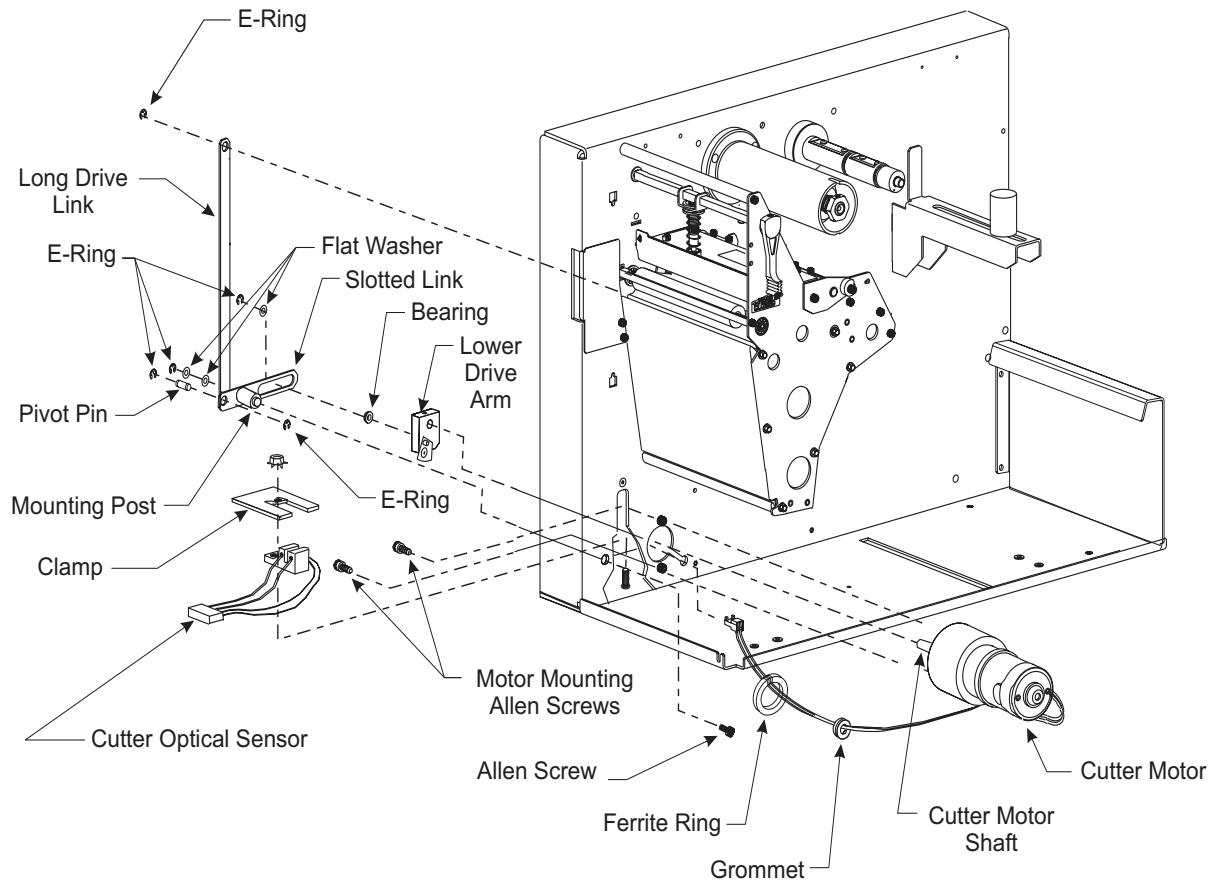


Figure 4-47. Cutter Motor Replacement

8. Tighten the two set screws that secure the lower drive arm to the shaft of the new cutter motor.



WARNING:
WEAR PROTECTIVE EYE WEAR WHEN REMOVING E-RINGS, C-CLIPS, SNAP RINGS AND SPRINGS. ALL OF THESE ARE UNDER TENSION AND COULD FLY OFF WHILE BEING REMOVED.

NOTE: *Make sure the notch in the main link points to the rear of the printer.*

9. Attach the main link to the slotted link with the pivot pin and two E-rings.
10. Position the slotted link to the lower drive arm. Attach it with the E-ring and two washers.
11. Connect the cutter motor power lead to cutter PCB connector J4.
12. Refer to “Lower Drive Arm Alignment” on page 4-60 and ensure that the alignment is correct.
13. Reinstall the DC power supply or the AC/DC power supply, depending on configuration. Ensure all wires are positioned away from any moving mechanical parts and are not pinched or cut.

14. Refer to Figure 4-4 or Figure 4-5. Carefully connect the remaining cables/connectors to the power supply and verify proper placement and orientation.
15. Ensure that the power switch is in the Off (**O**) position. Reconnect the AC power cord. Connect the power cord to a live AC source. Place the power switch in the On (**I**) position. Enter configuration mode and set the printer for cutter mode. Save as PERMANENT and place the power switch in the Off (**O**) position.
16. Test the cutter for proper operation. Load media and ribbon, hold in the PAUSE key while turning the AC power on and run labels through the printer.

NOTE: *If the media hits either cutter blade or the cutter does not cut through the label material completely, perform "Upper Drive Arm Alignment," before completing the installation.*

17. Reinstall the electronics cover.
18. Reconnect the data cables. Place the power switch in the On (**I**) position.

Platen Pulley Replacement

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (**O**) position and disconnect the AC power cord. Disconnect the data cables.
2. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
3. Refer to RRP No. 9 on page 4-23 and remove the main drive belt.
4. Refer to Figure 4-48. Loosen two Allen set screws. Remove the old platen pulley assembly.

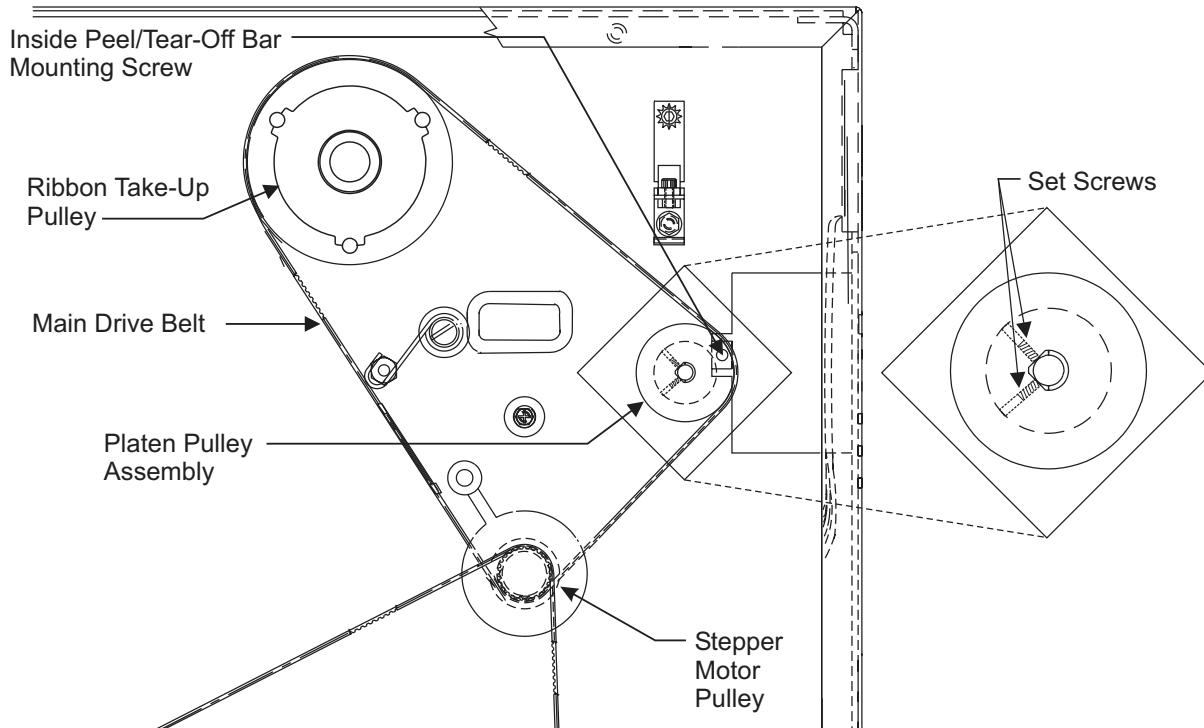


Figure 4-48. Platen Pulley Replacement

5. Install new platen pulley on end of platen shaft so that the set screws align with the flats of the platen shaft.
6. Tighten the two set screws in the new platen pulley assembly.
7. Reinstall and adjust the tension of main drive belt.
8. Reinstall the electronics cover.
9. Reconnect the data cables and the power cord.
10. Reconnect the power cable to the power source. Place the power switch in the On (I) position.

Transmissive Media Sensor Replacement

Remove Old Sensors

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (O) position and disconnect the AC power cord. Disconnect the data cables.
2. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
3. Open the media cover.
4. Open the printhead and remove all media and ribbon. Close the printhead.
5. Refer to Figure 4-49 and note the position of the upper media sensor bracket. Remove two screws attaching the upper media sensor bracket assembly.

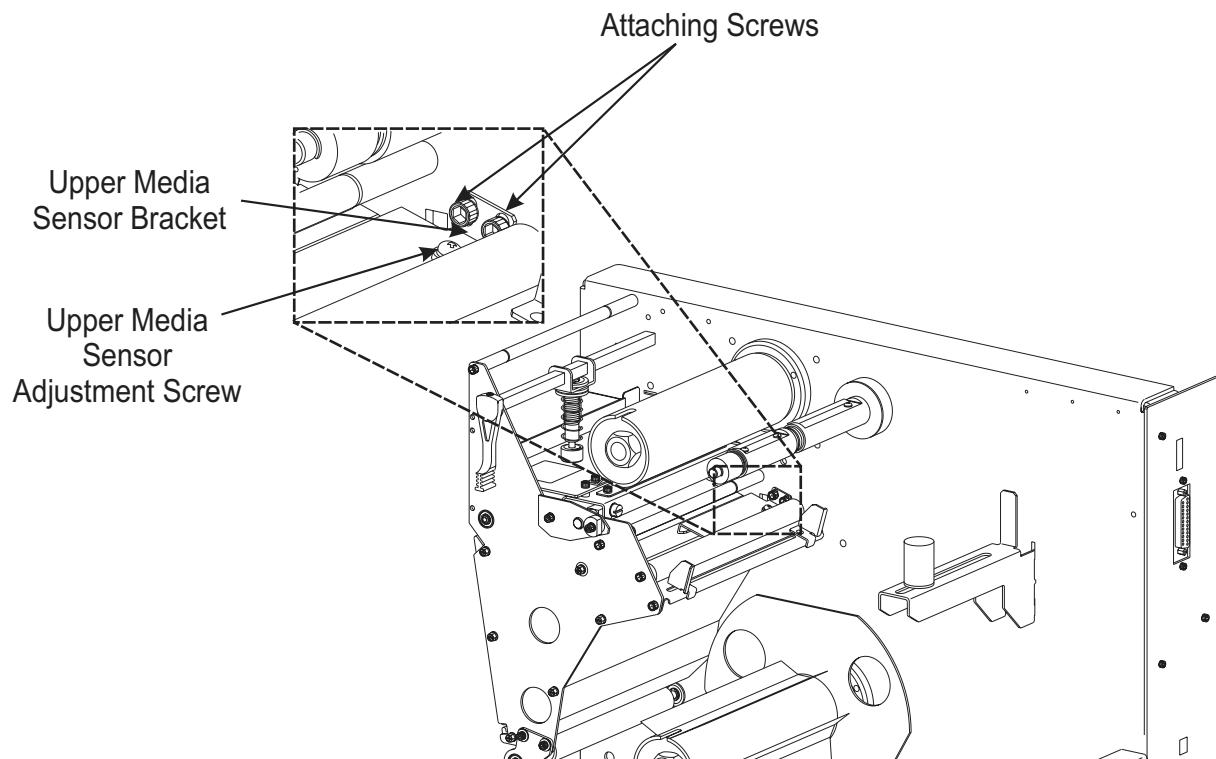


Figure 4-49. Upper Media Sensor Replacement

6. Refer to Figure 4-50. Examine how the linen thread is installed and knotted on the bracket. A replacement linen thread needs to be installed in the same manner.

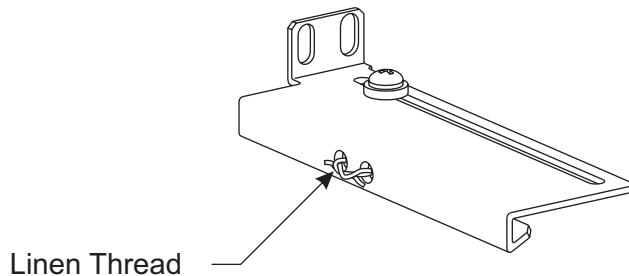


Figure 4-50. Linen Thread Placement

- Refer to Figure 4-51. Remove the screw attaching the upper media sensor to the bracket. Set aside the bracket.

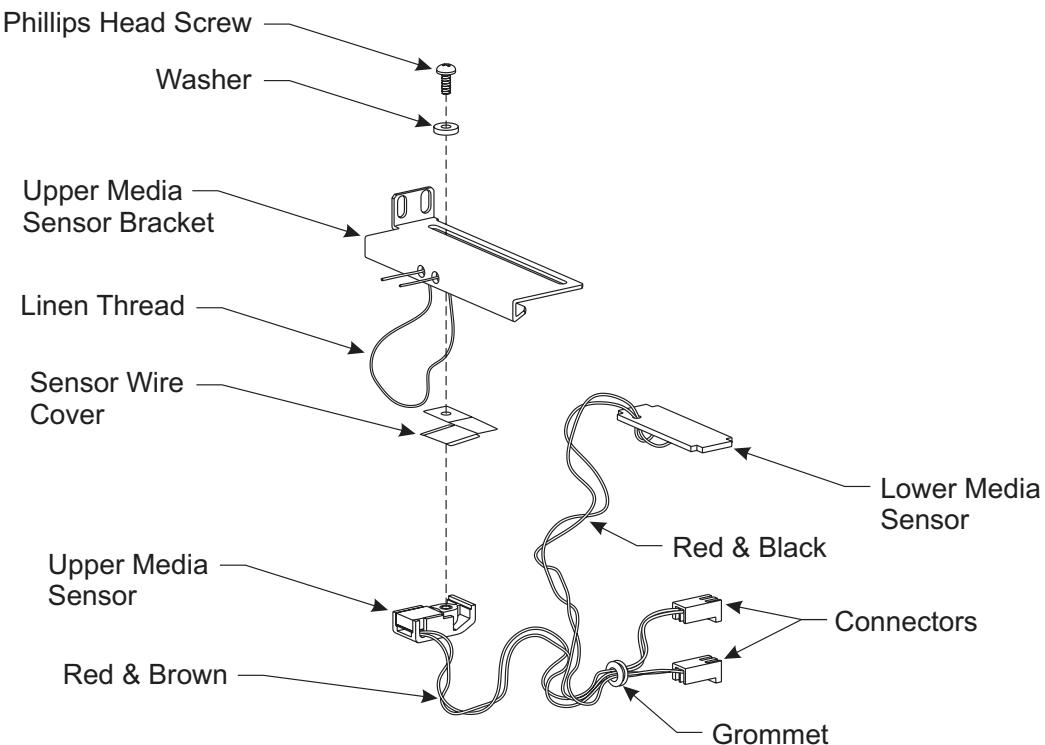


Figure 4-51. Upper Media Sensor and Bracket

NOTE: *A small screwdriver may be used to take pressure off the locking tabs that grip the PCB.*

- Refer to Figure 4-52. Slide the lower media sensor away from the printer main frame so you can get at it. Carefully pry apart the sides of the bracket holding the sensor PCB. The sensor PCB should fall free and dangle from its electrical leads.
- Refer to Figure 4-4 or Figure 4-5. Locate the electrical leads from the two sensors. Open the reusable wire ties and white plastic clamps and follow sensor electrical leads to main logic board connectors.

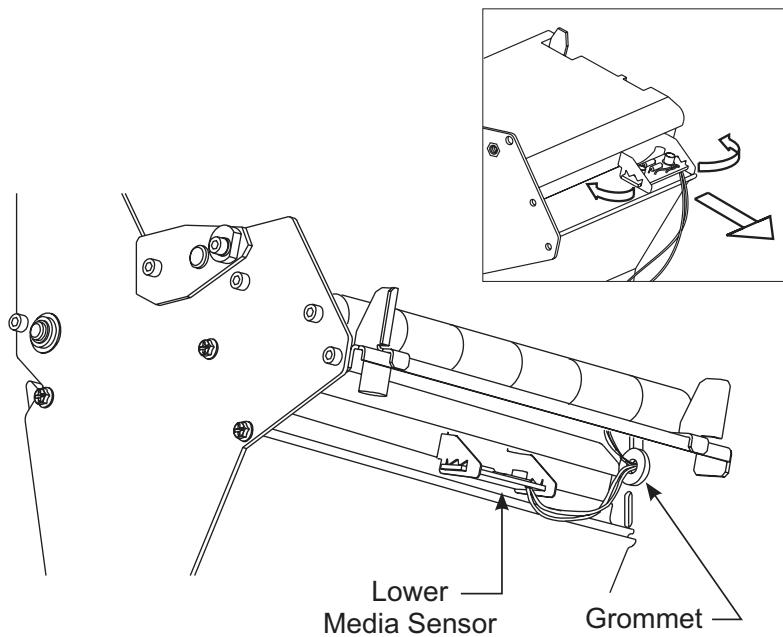


Figure 4-52. Lower Media Sensor and Bracket

10. Remove these electrical lead connectors. From the media side of the printer, remove the grommet from the slot in the printer main frame. Gently pull on the sensors while guiding the wires through the hole in the main frame.
11. Remove the upper and lower sensors and electrical leads with the connectors.

Install New Sensors

1. Refer to Figure 4-51. Use neoprene pad washer (part of the replacement parts kit) under the head of the screw and attach the upper media sensor (red and brown electrical leads) to the upper sensor bracket.
2. Attach the electrical leads of the new sensor to the bracket using the new waxed linen thread. Tie a secure knot to hold the leads. Use the holes in the bracket to attach the electrical leads. Cut and trim the excess cord.
3. Install the split grommet over the leads. Push the upper sensor leads through the hole in the main frame. Install the grommet in the hole.
4. Refer to Figure 4-49. Attach the upper sensor bracket, with upper sensor, to the main frame of the printer.
5. Refer to Figure 4-4 or Figure 4-5. From the electronics side of the printer, take up the slack in the electrical leads from the new upper sensor.
6. Refer to Figure 4-52. Pry apart the sides of the lower sensor mounting bracket and install the new lower sensor PCB with red and black electrical leads. Make sure the PCB gets seated firmly in the bracket.
7. Refer to Figure 4-4 or Figure 4-5. On the electronics side of the printer, route the electrical leads through the wire tie and white plastic clamps to the main logic board.

8. Connect upper sensor green and yellow leads to the main logic board. Connect lower sensor red and black leads to the main logic board.
9. Close the white plastic clamps. Secure the clamps with hex nuts. Adjust the wire tie to secure the wires.
10. Reinstall the electronics cover.
11. Refer to "Transmissive Media Sensor Position Adjustment" on page 4-35 and adjust the position of the sensors.
12. Reinstall the media and ribbon. Close the media cover.
13. Reconnect the data cables and the power cord.
14. Reconnect the power cable to the power source. Place the power switch in the On (**I**) position.

Media Rewind Spindle Assembly Replacement

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (**O**) position and disconnect the AC power cord. Disconnect the data cables.
2. Open the media cover.
3. Open the printhead and remove the media and ribbon. Close the printhead.
4. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
5. For printers with configuration number 10500-0XXX-XXXX or 10500-1XXX-XXXX, refer to RRP No. 3 on page 4-13 and remove the DC power supply.

or

For printers with configuration number 10500-2XXX-XXXX or 10500-3XXX-XXXX, refer to RRP No. 5 on page 4-16 and remove the AC/DC power supply.
6. Refer to RRP No. 6 on page 4-18 and remove the main drive belt. Refer to RRP No. 9 on page 4-23 and remove the rewind drive belt.

WARNING:



WEAR PROTECTIVE EYE WEAR WHEN REMOVING E-RINGS, C-CLIPS, SNAP RINGS AND SPRINGS. ALL OF THESE ARE UNDER TENSION AND COULD FLY OFF WHILE BEING REMOVED.

7. Refer to Figure 4-53. Use a screwdriver and/or a pair of pliers and remove the media rewind spindle E-ring.
8. Remove the spacer, rewind pulley, flat washer, wave washer, and rewind spindle.
9. Remove the three screws with washers and the bearing housing.
10. Install the new bearing housing and secure with three screws and washers.
11. From the right hand side of the printer, install the new media rewind spindle.
12. On the left hand side of the printer, install the wave washer, the flat washer, the media rewind pulley and the spacer.

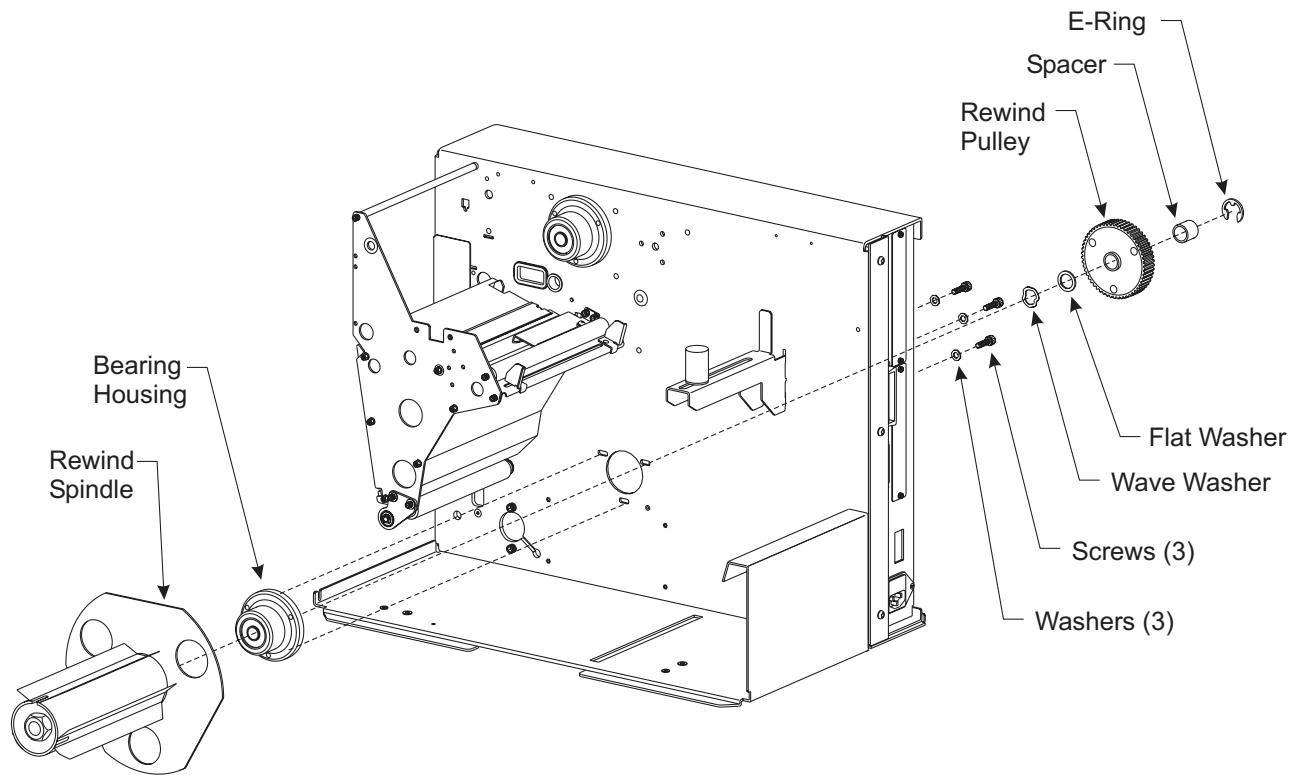


Figure 4-53. Media Rewind Spindle Replacement

13. Secure the new media rewind spindle assembly with the E-ring.
14. Reinstall the rewind drive belt. Reinstall the main drive belt.
15. Refer to RRP No. 8 on page 4-22 and adjust the tension on the main drive belt.
16. Refer to RRP No. 10 on page 4-25 and adjust the tension on the rewind drive belt.
17. Reinstall the DC power supply or the AC/DC power supply, depending on configuration.
18. Reinstall the electronics cover.
19. Reinstall media and ribbon. Close the printhead.
20. Close the media cover. Configure the printer for media rewind.
21. Reconnect the data cables and the power cord.
22. Reconnect the power cable to the power source. Place the power switch in the On (I) position.

Ribbon Supply Spindle Replacement



CAUTION:

NEVER TURN THE RIBBON SUPPLY SPINDLE COUNTERCLOCKWISE AS VIEWED FROM THE END. DOING SO CAN DISCONNECT THE TENSION SPRING AND REQUIRE THE SPINDLE TO BE REBUILT.

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (**O**) position and disconnect the AC power cord. Disconnect the data cables.
2. Open the media cover.
3. Open the printhead and remove the media and ribbon. Close the printhead.
4. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
5. Refer to Figure 4-54. Remove the nut and washer that attaches the ribbon supply spindle.

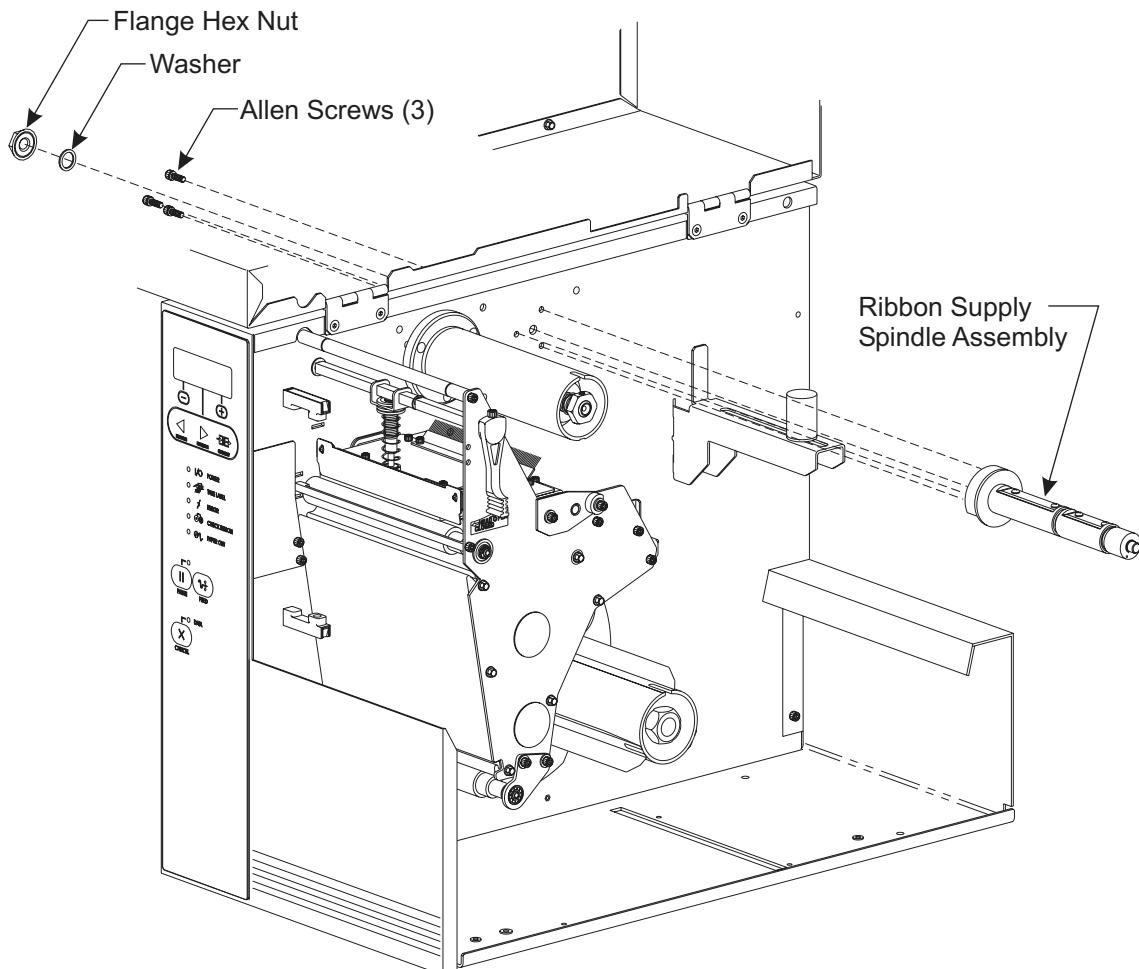


Figure 4-54. Ribbon Supply Spindle Kit Parts and Mounting Location

6. Remove the three screws that attach the bearing housing.

7. On the right hand side of the printer, pull out the old ribbon supply spindle and bearing housing, as an assembly.
8. Install the new ribbon supply spindle and bearing housing, as an assembly, through the mounting hole in the printer main frame.
9. Attach the bearing housing with three screws. Tighten the screws to 18–20 inch-pounds. (2.0–2.3 N·m).
10. Install the new nut and washer that secures the new ribbon supply spindle.
11. Reinstall the electronics cover.
12. Reinstall the media and ribbon. Close the printhead.
13. Reconnect the power cord.
14. Reconnect the power cable to the power source.
15. Print the CANCEL Key Self Test label and check the ribbon tension.
16. If ribbon tension is not correct, refer to “Spindle Tension Adjustment” on page 4-39 and check the tension. If ribbon tension is correct, place the power switch in the Off (O) position and reconnect the data cables.

Ribbon Take-Up Spindle Replacement

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (O) position and disconnect the AC power cord. Disconnect the data cables.
2. Open the media cover.
3. Open the printhead and remove the media and ribbon.
4. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
5. Refer to RRP No. 9 on page 4-23 and remove the main drive belt.



WARNING:

WEAR PROTECTIVE EYE WEAR WHEN REMOVING E-RINGS, C-CLIPS, SNAP RINGS AND SPRINGS. ALL OF THESE ARE UNDER TENSION AND COULD FLY OFF WHILE BEING REMOVED.

6. Refer to Figure 4-55 and remove the E-ring, the belt pulley, the spacer, the flat washer, and the wave washer.
7. Remove the ribbon take-up spindle.
8. Remove the three screws and washers that secure the ribbon take-up spindle bearing housing. Remove the ribbon take-up spindle bearing housing.
9. Position the new ribbon take-up spindle bearing housing to the printer. Secure with three screws and washers.
10. Insert the replacement ribbon take-up spindle through the new bearing housing on the printer main frame.

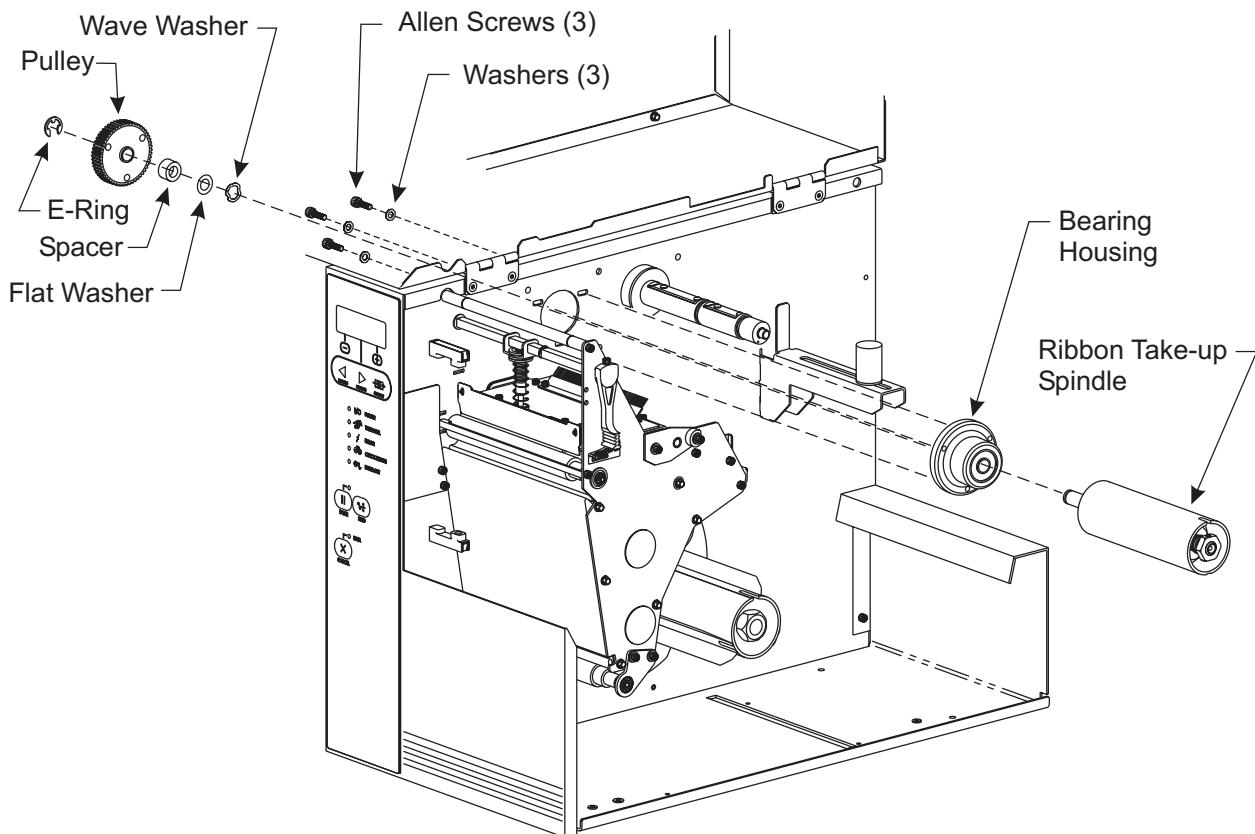
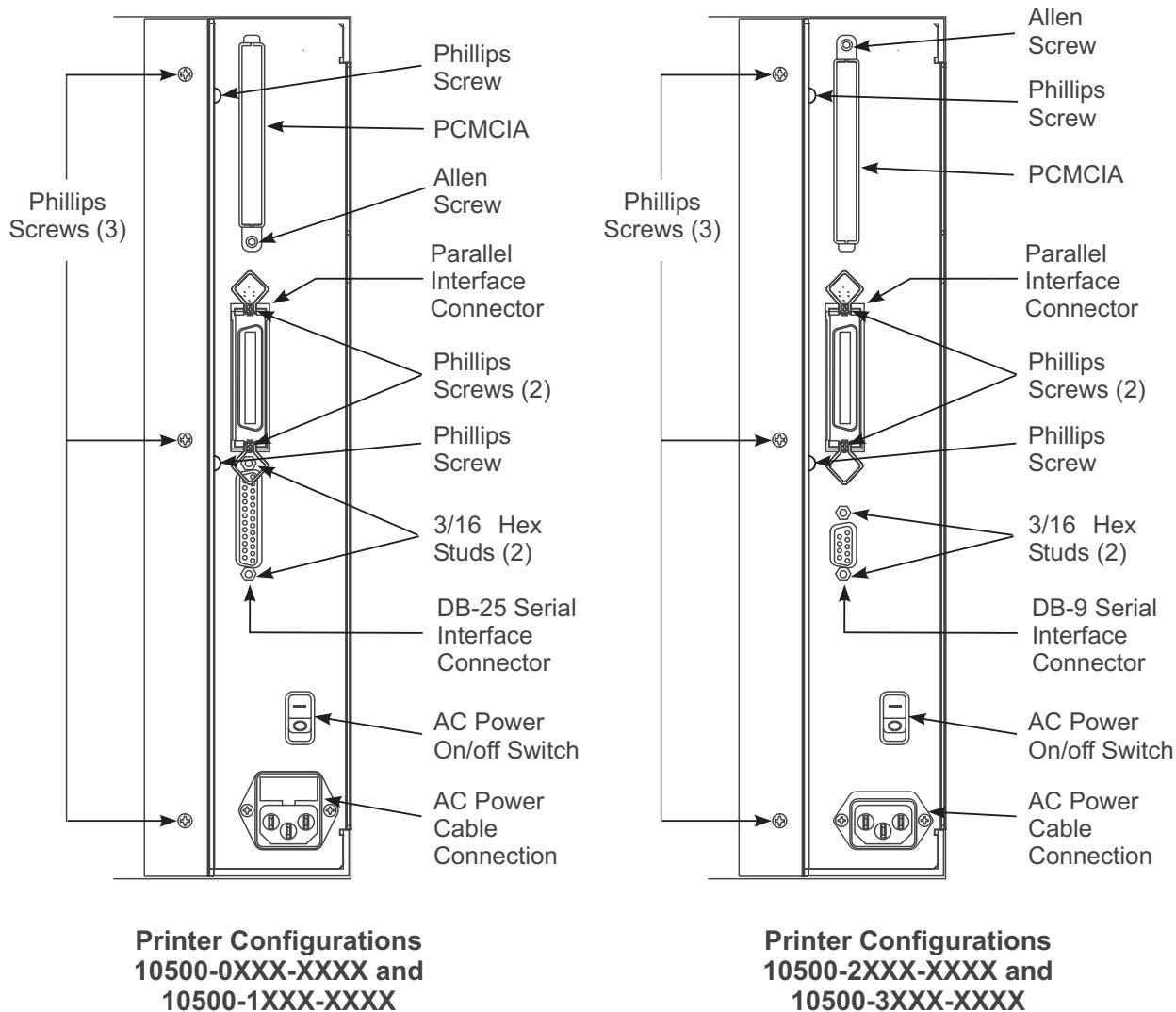


Figure 4-55. Ribbon Take-up Spindle

11. Install the wave washer, flat washer, spacer and belt pulley. Secure the new spindle assembly with the E-ring.
12. Reinstall and adjust the tension of the main drive belt.
13. Reinstall the electronics cover.
14. Reinstall the media and ribbon. Close the printhead.
15. Reconnect the power cord.
16. Reconnect the power cord to the power source.
17. Print the CANCEL Key Self Test label and check the ribbon tension.
18. If ribbon tension is not correct, refer to “Spindle Tension Adjustment” on page 4-39 and check the tension. If ribbon tension is proper, place the power switch in the Off (**O**) position and reconnect the data cables.

Rear Panel Replacement

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (**O**) position and disconnect the AC power cord. Disconnect the data cables.
2. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
3. Refer to Figure 4-56. Remove the screw and the option card shield. Press the card release button to remove any font card or memory card.
4. Remove optional interface board if installed.

**Figure 4-56. Rear Panel Fasteners**

5. Remove the two hex studs holding the serial interface connector and the two screws holding the parallel interface connector to the back of the printer.
6. Refer to Figure 4-57. Remove the hex nut holding the ground lead from the power entry module to the printer chassis. Pull the wires off the power inlet module and the power switch.
7. Refer to Figure 4-56. Remove the two Phillips screws holding the back panel to the aluminum plate.
8. Remove the three Phillips screws holding the back panel to the printer.
9. Slide the rear panel assembly out and away from the printer.
10. Remove the two screws and AC power cable connection (power entry module).
11. Refer to Figure 4-57. Squeeze the top and bottom of the power switch module to release it from the back panel. Remove the module from the panel.
12. Discard old rear panel.

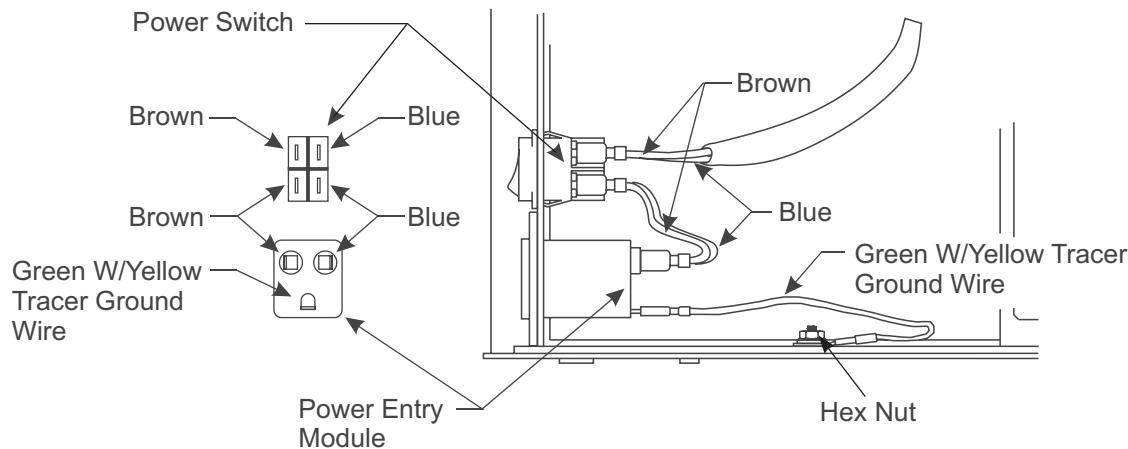


Figure 4-57. Rear Panel Wiring

13. Snap the power switch assembly into the replacement rear panel.
14. Install the AC power entry module into the replacement rear panel and secure with two screws.
15. Position the replacement rear panel to the back of the printer. Guide the parallel, serial port and PCMCIA connectors through the new rear panel. Loosely install the three screws to hold the rear panel in position.

NOTE: *Connect the AC input power wires correctly. If the wires are not connected properly, the fuse on the AC power supply will blow.*

16. Reattach the ground wire from power entry module to the grounding post and secure with the hex nut.
17. Reinstall the two Phillips screws that attach the rear panel to the aluminum plate.
18. Connect the brown and blue AC power wires as shown in Figure 4-57. The blue wires stay on the inside while the brown wires are on the outside.
19. Install the two hex studs to secure the serial interface connector and the two screws to secure the parallel interface connector. The PCMCIA floats in position.
20. Install the data card shield and secure with the screw.
21. Tighten the three screws to secure the rear panel to the printer.
22. Reinstall optional interface board if applicable.
23. Reinstall the electronics cover.
24. Reconnect the data cables and the power cord.
25. Reconnect the power cable to the power source. Place the power switch in the On (I) position.
26. If the printer completes the Power-On Self Test, the repair was performed correctly.
27. If the fuse blew, disconnect the power cord from the power source and check the wiring between the power entry module and the power switch. Make sure all the connections

were made correctly. Replace the fuse and reconnect the power cord. Place the power switch in the On (**I**) position.

Ribbon Take-Up Pulley Replacement

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (**O**) position and disconnect the AC power cord. Disconnect the data cables.
2. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
3. Refer to RRP No. 9 on page 4-23 and remove the main drive belt.



WARNING:

WEAR PROTECTIVE EYE WEAR WHEN REMOVING E-RINGS, C-CLIPS, SNAP RINGS AND SPRINGS. ALL OF THESE ARE UNDER TENSION AND COULD FLY OFF WHILE BEING REMOVED.

4. Refer to Figure 4-58 and use a screwdriver or pair of pliers and remove the E-ring.

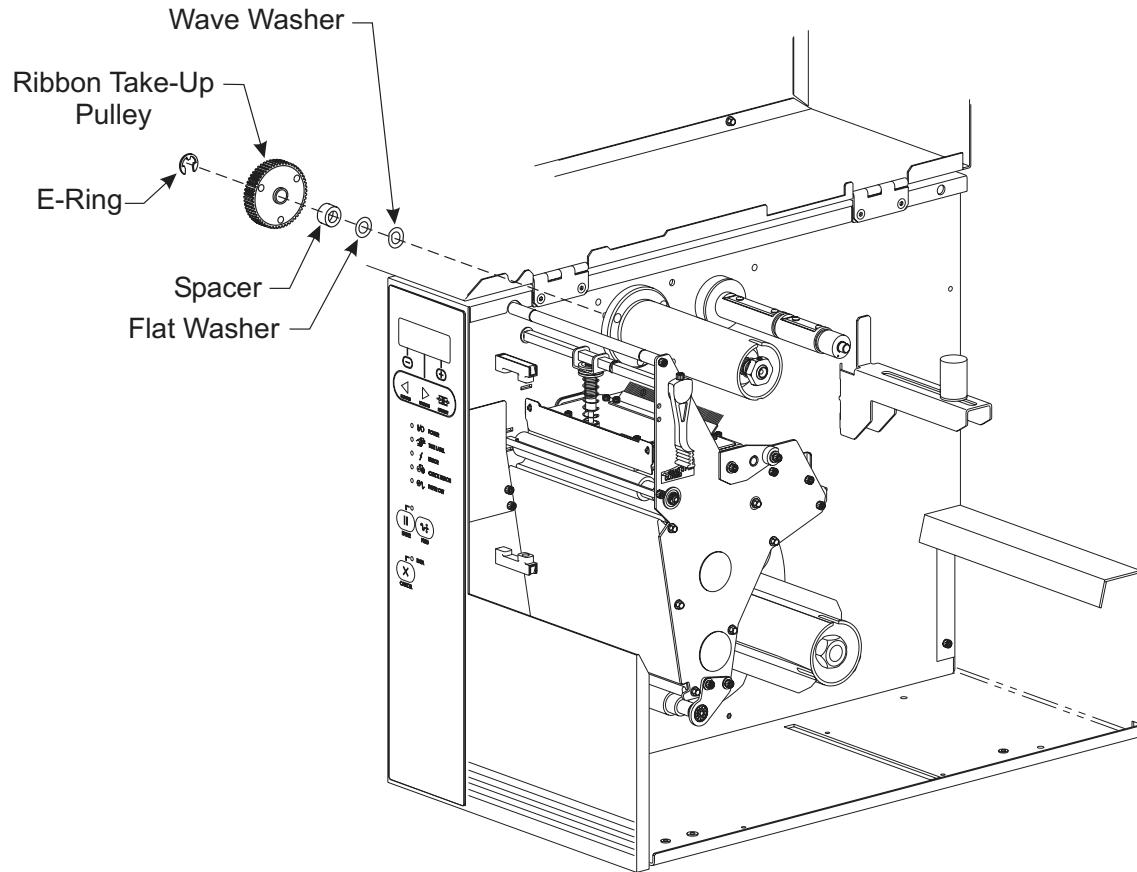


Figure 4-58. Ribbon Take-up Pulley Replacement

5. Slide the ribbon take-up pulley off the shaft.

NOTE: Do not remove the spacer, flat washer, and wave washer.

6. Slide the replacement pulley onto the ribbon shaft.

7. Reinstall the E-ring to retain the pulley.
8. Install the main drive belt. Refer to RRP No. 8 on page 4-22 and adjust the tension on the main drive belt.
9. Reinstall the electronics cover.
10. Reconnect the data cables and the power cord.
11. Reconnect the power cable to the power source. Place the power switch in the On (**I**) position.

Media Take-Up Pulley Replacement

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (**O**) position and disconnect the AC power cord. Disconnect the data cables.
2. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
3. For printers with configuration number 10500-0XXX-XXXX or 10500-1XXX-XXXX, refer to RRP No. 3 on page 4-13 and remove the DC power supply.

or

For printers with configuration number 10500-2XXX-XXXX or 10500-3XXX-XXXX, refer to RRP No. 5 on page 4-16 and remove the AC/DC power supply.

4. Refer to RRP No. 9 on page 4-23 and remove the main drive belt.
5. Refer to RRP No. 11 on page 4-26 and remove the rewind drive belt.

WARNING:



WEAR PROTECTIVE EYE WEAR WHEN REMOVING E-RINGS, C-CLIPS, SNAP RINGS AND SPRINGS. ALL OF THESE ARE UNDER TENSION AND COULD FLY OFF WHILE BEING REMOVED.

6. Refer to Figure 4-59 and use a screwdriver or pair of pliers and remove the E-ring.
7. Slide the spacer and the pulley off the shaft.

NOTE: Do not remove the flat washer and wave washer.

8. Slide the replacement pulley onto the media take-up shaft.
9. Slide the spacer back onto the shaft.
10. Reinstall the E-ring to retain the assembly.
11. Reinstall the rewind drive belt. Refer to RRP No. 10 on page 4-25 to adjust the tension on the rewind drive belt.
12. Reinstall the main drive belt. Refer to RRP No. 8 on page 4-22 to adjust the tension on the main drive belt.
13. Reinstall the DC power supply or the AC/DC power supply, depending on configuration.
14. Reinstall the electronics cover.
15. Reconnect the data cables and the power cord.

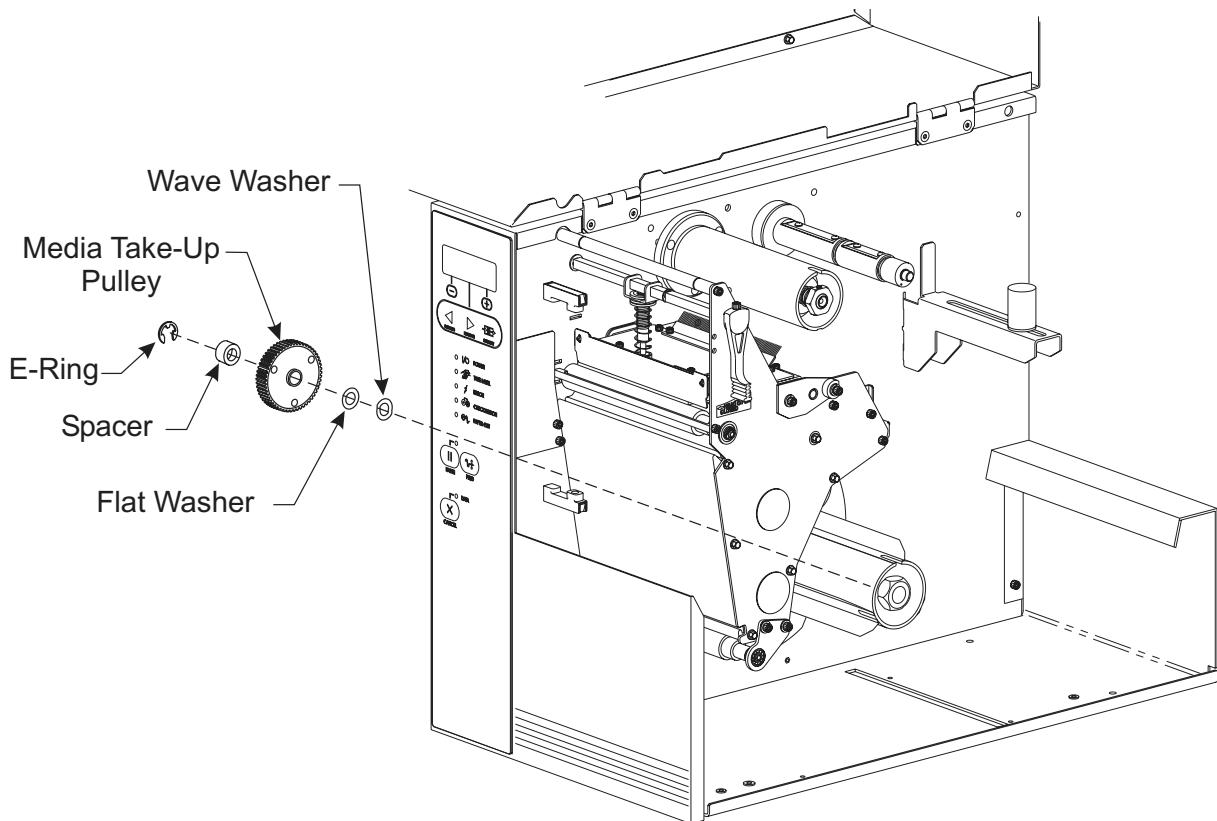


Figure 4-59. Media Take-up Pulley Replacement

16. Reconnect the power cable to the power source. Place the power switch in the On (I) position.

Peel Roller Pulley Replacement

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (O) position and disconnect the AC power cord. Disconnect the data cables.
2. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
3. For printers with configuration number 10500-0XXX-XXXX or 10500-1XXX-XXXX, refer to RRP No. 3 on page 4-13 and remove the DC power supply.
or
For printers with configuration number 10500-2XXX-XXXX or 10500-3XXX-XXXX, refer to RRP No. 5 on page 4-16 and remove the AC/DC power supply.
4. Refer to RRP No. 9 on page 4-23 and remove the main drive belt.
5. Refer to RRP No. 11 on page 4-26 and remove the rewind drive belt.
6. Refer to Figure 4-60 and loosen the two set screws securing the peel roller pulley to the peel roller shaft.
7. Slide the peel roller pulley off the shaft.
8. Orient the replacement pulley so the set screws align with the flats in the shaft.
9. Slide the pulley all the way onto the shaft.

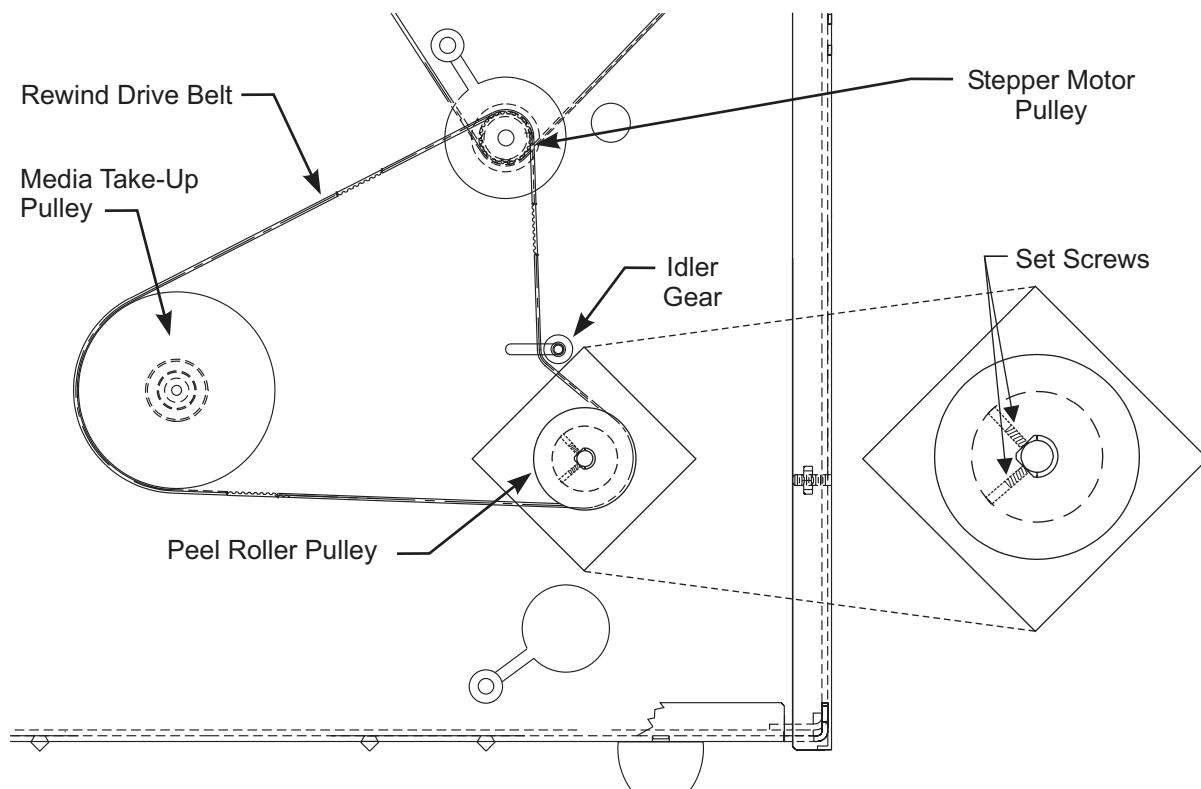


Figure 4-60. Peel Roller Pulley Replacement

10. Tighten the two set screws to secure the pulley.
11. Reinstall the rewind drive belt. Refer to RRP No. 10 on page 4-25 to adjust the tension on the rewind drive belt.
12. Reinstall the main drive belt. Refer to RRP No. 8 on page 4-22 to adjust the tension on the main drive belt.
13. Reinstall the DC power supply or the AC/DC power supply, depending on configuration.
14. Reinstall the electronics cover.
15. Reconnect the data cables and the power cord.
16. Reconnect the power cable to the power source. Place the power switch in the On (I) position.

Pivot Bar, Printhead Lever, and Toggle Replacement

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (O) position and disconnect the AC power cord. Disconnect the data cables.
2. Open the media cover.
3. Open the printhead and remove the media and ribbon. Close the printhead.
4. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
5. See Figure 4-61 and loosen the screw that retains the printhead lever.
6. Remove the printhead lever and the wave washer.

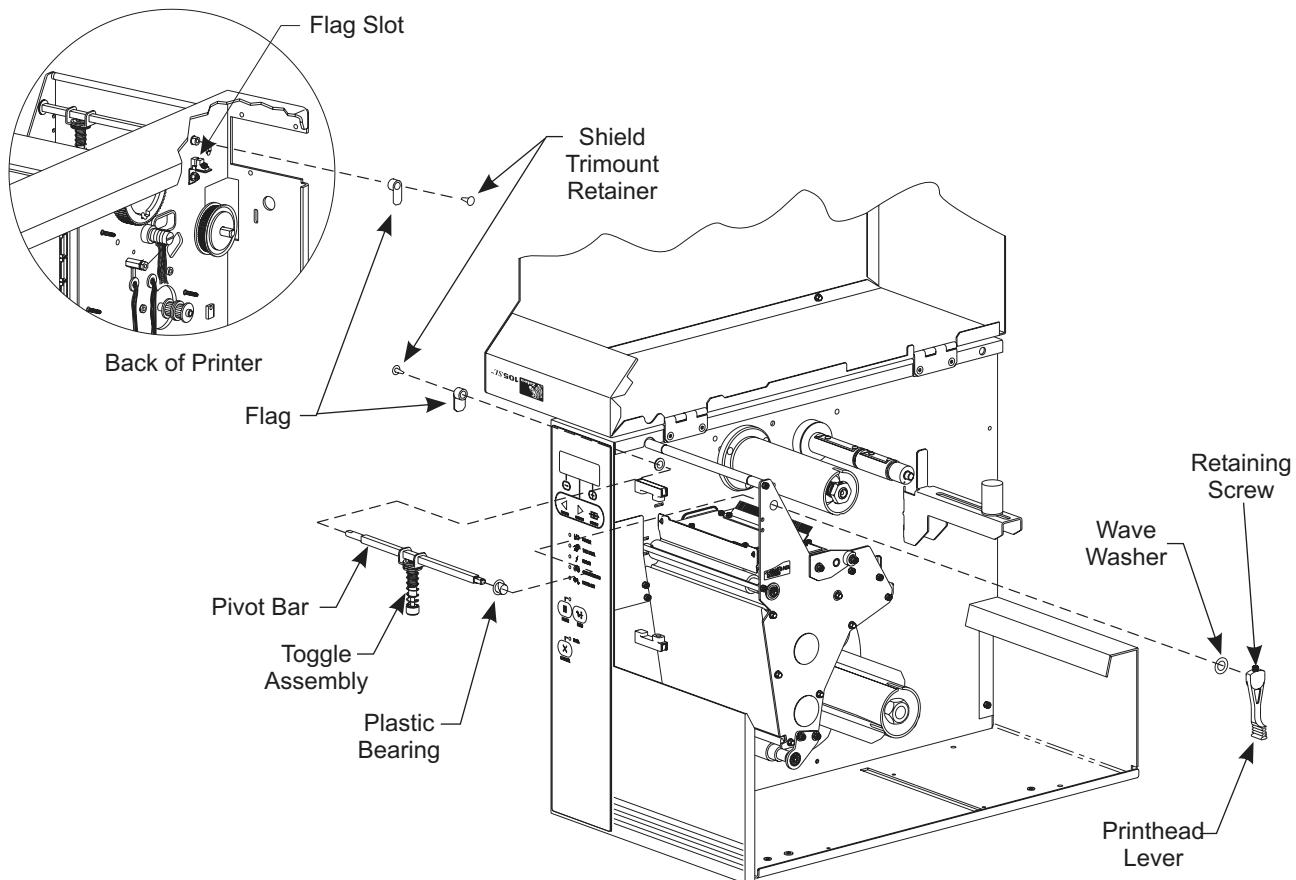


Figure 4-61. Pivot Bar, Handle and Toggle Parts

7. On the left side of the printer, pry off the shield trimount retainer that retains the printhead open flag.
8. Slide the pivot shaft to the right and remove the flag.
9. Slide the pivot shaft to the left. Move the right-hand end of the shaft out of the plastic bearing in the side plate. Slide the entire pivot shaft with toggle assembly out from the printer.

NOTE: *The flag, the toggle assembly, and the printhead lever are all keyed on the pivot shaft assembly and must all be installed in the same orientation for the head open sensor to work correctly.*

10. Insert the left end of pivot bar and toggle assembly through the main frame of the printer. Work the right end of the pivot bar into the plastic bushing in the side plate.
11. Rotate the pivot shaft until the toggle assembly points down holding the printhead closed.
12. On the left side of the printer, install the flag, facing down, in the sensor slot.
13. Hold the pivot bar and toggle assembly and press on the shield trimount retainer.
14. Reinstall the wave washer.

15. With the printhead lever facing down, slide it onto the shaft far enough to compress the wave washer.

NOTE: *The retaining screw screws through the handle into the shaft.*

16. Tighten the retaining screw so it threads into the pivot shaft.
17. Check the orientation and operation of the printhead lever, toggle, and head open flag.
18. Reinstall the electronics cover.
19. Open the printhead and reinstall media and ribbon. Close the printhead.
20. Slide the toggle to the middle of the media, and refer to “Printhead Pressure” on page 4-30 to adjust the toggle.
21. Close the media cover.
22. Reconnect the data cables and the power cord.
23. Reconnect the power cable to the power source. Place the power switch in the On (**I**) position.
24. If you get a “head open” error, check to make sure the flag, the toggle, and handle are oriented the same way. They point down when the toggle assembly holds the printhead closed. Make sure the flag is in the flag slot.

Rewind Plate Replacement

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (**O**) position and disconnect the AC power cord. Disconnect the data cables.
2. Open the media cover.
3. Open the printhead and remove the media and ribbon. Close the printhead.
4. Refer to Figure 4-62 and carefully slide the rewind plate out of the slots in the printhead mechanism and away from the printer.
5. Engage the top lip and hook plate of the replacement rewind plate into the two mounting slots.
6. Slide the plate in as far as it can go.
7. Open the printhead and reinstall media and ribbon. Close the printhead. Close the media cover.
8. Reconnect the data cables and the power cord.
9. Reconnect the power cable to the power source. Place the power switch in the On (**I**) position.
10. Run test labels and check to see if the media telescopes on the rewind spindle. If it does, refer to “Media Tracking Adjustment” on page 4-37 and adjust the hook plate on the rewind plate.

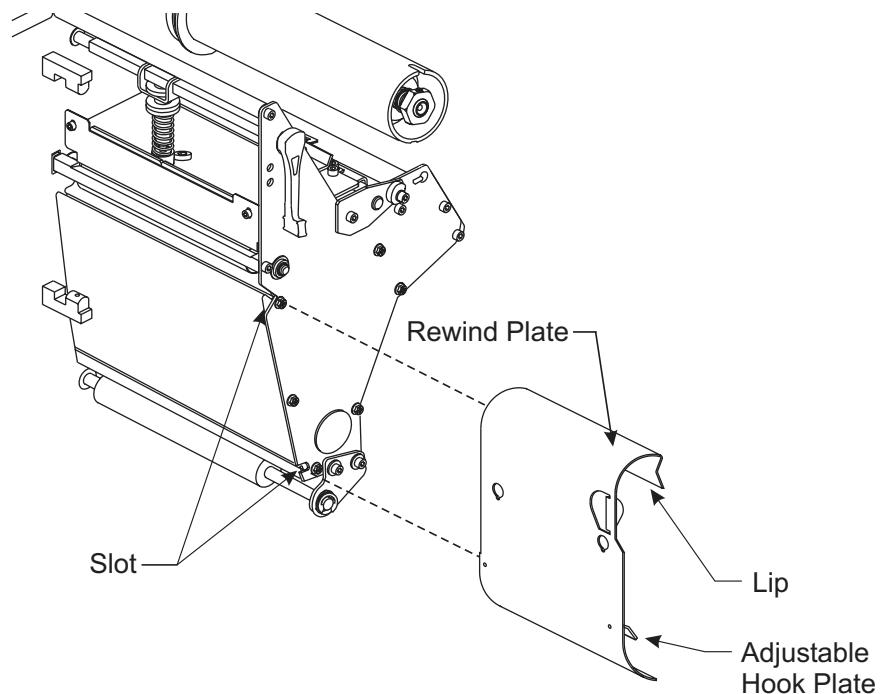


Figure 4-62. Rewind Plate Replacement

Ribbon Sensor Replacement

Remove the Old Ribbon Sensor

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (O) position and disconnect the AC power cord. Disconnect the data cables.
2. Open the media cover.
3. Open the printhead and remove the media and ribbon. Close the printhead.



CAUTION:

OBSERVE PROPER ELECTROSTATIC SAFETY PRECAUTIONS WHEN
HANDLING ANY STATIC-SENSITIVE COMPONENTS SUCH AS PRINTED
CIRCUIT BOARDS AND PRINTHEADS.

4. Refer to Figure 4-63. Locate the spring-loaded printhead mounting screw on top of the printhead assembly. Loosen the mounting screw until it disengages from the printhead.
5. Slowly open the printhead assembly. The printhead remains on the platen while the rest of the assembly pivots out of the way.

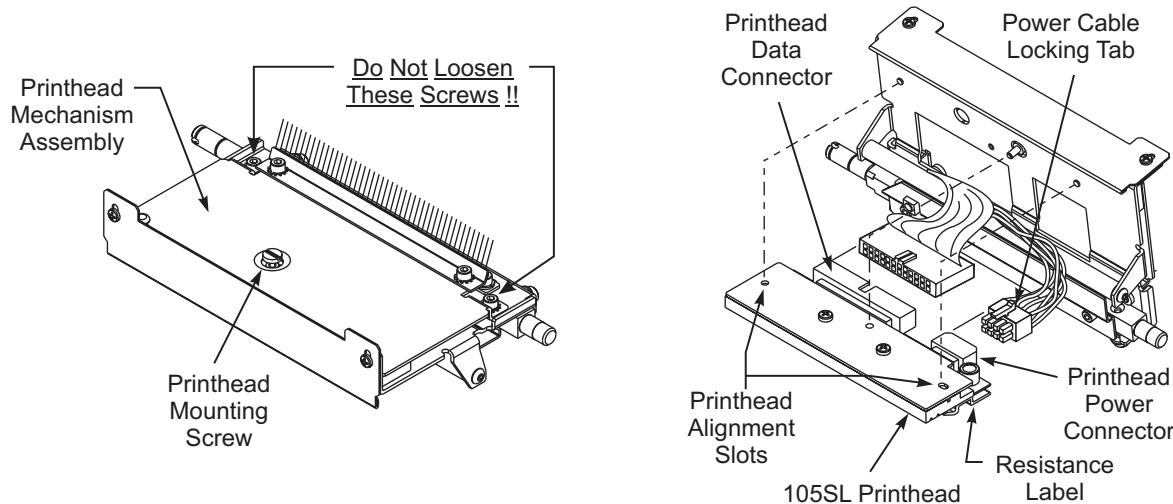
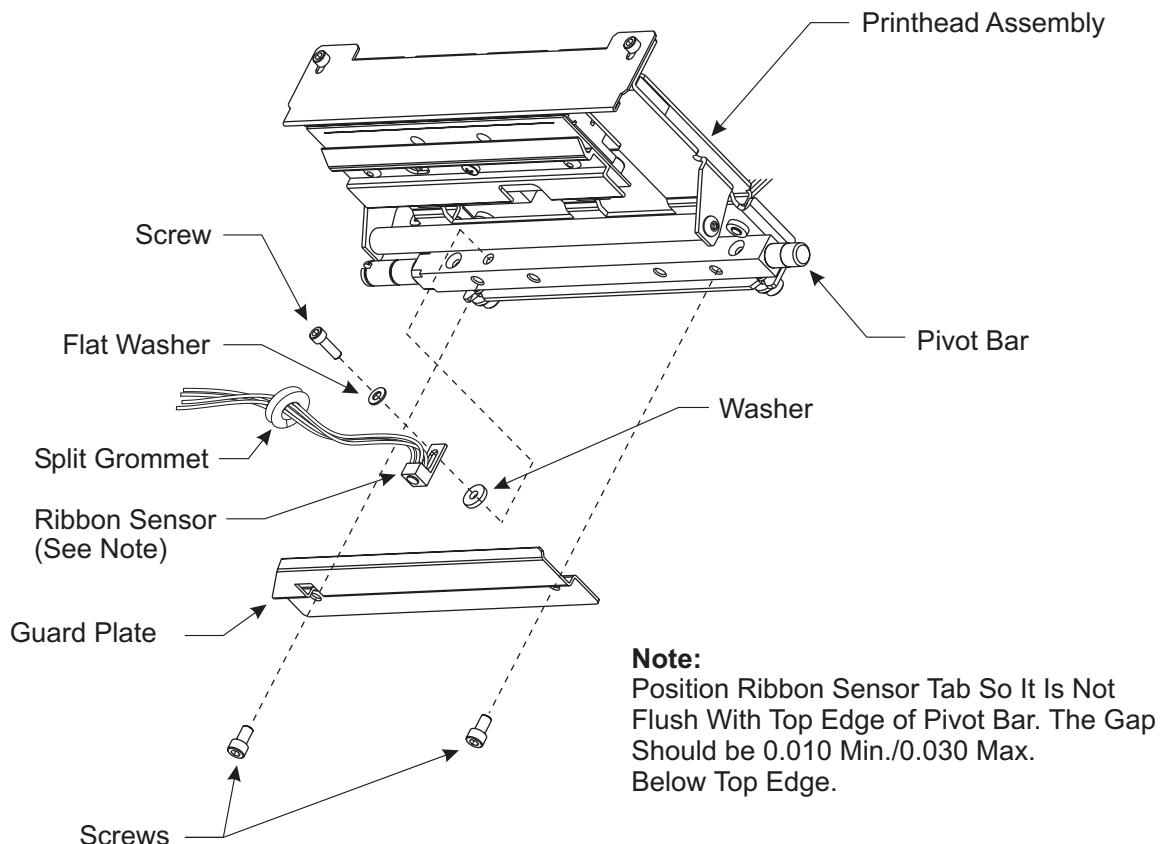
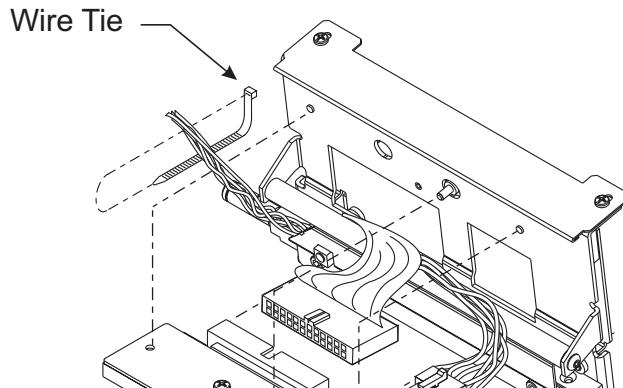


Figure 4-63. Printhead Replacement



CAUTION:
THE PRINthead IS VERY DELICATE AND SUSCEPTIBLE TO DAMAGE IF NOT HANDLED CAREFULLY. USE PARTICULAR CARE TO ENSURE THAT THE PRINthead IS NOT DAMAGED WHEN HANDLING IT.

6. Carefully disconnect the printhead data connector from the printhead.
7. Carefully disconnect the power cable connector from the printhead.
8. Remove the printhead through the front of the printer.
9. Refer to Figure 4-64 and remove the two screws that attach the guard plate.
10. Pull the data and power cables away from the ribbon sensor.
11. Remove the screw and washer that attach the ribbon sensor.
12. Refer to Figure 4-65 and cut the tie wrap around the power, data and ribbon sensor electrical leads.
13. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
14. Refer to Figure 4-4 or Figure 4-5. Locate the electrical wires for the ribbon sensor coming out through a hole in the main frame. There are two twisted wire pairs; black and orange and black and red. Clip wire ties and open white plastic clamps as necessary to follow and remove ribbon sensor power wires going to the main logic board.
15. Disconnect the ribbon sensor connector at the main logic board. Pull out wires through the grommet at the main frame. Remove the sensor wires from the grommet and feed the power lead back into media side of the printer.
16. Remove the old ribbon sensor.

**Figure 4-64. Guard Plate and Sensor****Figure 4-65. Wire Tie Removal and Installation****Install the New Ribbon Sensor**

1. From the media side, feed the power lead from the new ribbon sensor through the grommet in the main frame.
2. Refer to Figure 4-64 and mount the ribbon sensor to the printhead pivot bar.
3. Orient the guard plate so the cutout aligns with the ribbon sensor. Install the plate with two screws.
4. Move the printhead back into position so you can carefully connect the data and the power cables.

5. Refer to Figure 4-65. Bunch the printhead power and data cables along with the ribbon sensor cable. Install a tie wrap around all three cables and the printhead pivot shaft. Snug it up and cut off the excess.
6. Carefully position the alignment slots in the new printhead over the alignment posts on the underside of the mounting bracket.
7. Seat the printhead completely and hold it in place. Carefully tighten the mounting screw to secure it to the mounting plate.
8. Refer to Figure 4-66. Use a cleaning swab from the printhead cleaning kit (Zebra part # 01429) and thoroughly clean the gray area of the new printhead.

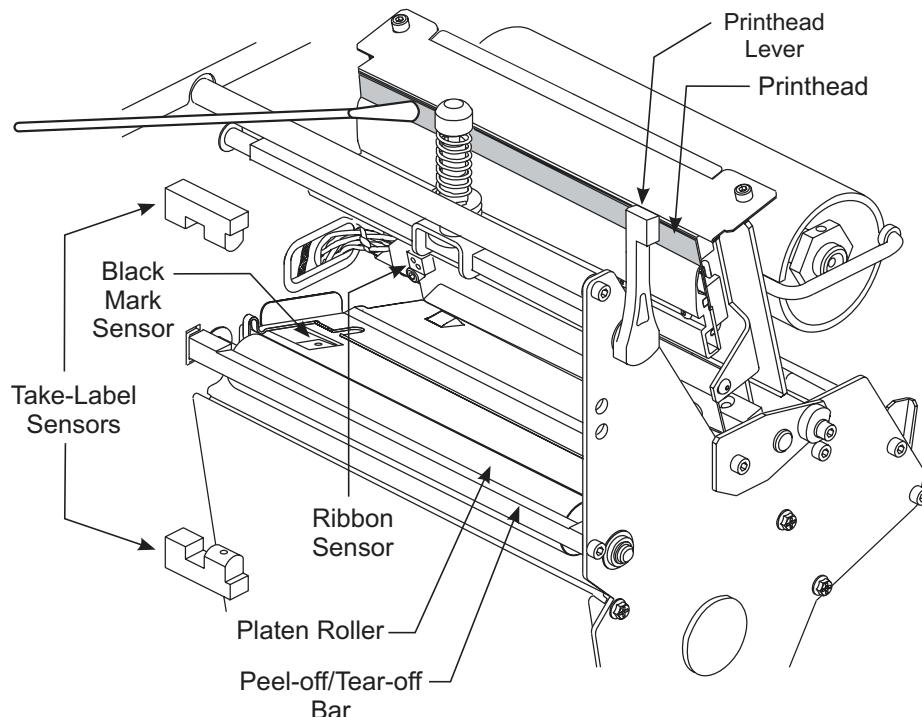


Figure 4-66. Printhead Cleaning

9. Carefully close and open the printhead to ensure that there are no obstructions.
10. Route the ribbon sensor power cable through the two white plastic clamps to the main logic board. Close and secure the clamps with hex nuts.
11. Plug the ribbon sensor wire connector into the connector on the main logic board.
12. Reinstall the media and ribbon. Close the printhead.
13. Close the media cover.
14. Reinstall the electronics cover.
15. Reconnect the data cables and the power cord.
16. Reconnect the power cable to the power source. Place the power switch in the On (**I**) position.
17. Perform Media and Ribbon Calibration procedure.

18. If you receive a Ribbon Error, check all the steps of the installation procedure. Make sure that the sensor power connector is fully seated into the connector on the logic board.

Take Label Sensor Replacement

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (O) position and disconnect the AC power cord. Disconnect the data cables.
2. Open the media cover.
3. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
4. Refer to Figure 4-67 and remove the screws that secure the upper and lower take-label sensors.

NOTE: *The upper take-label sensor has green/yellow wires.*

5. Insert the upper take-label sensor connector and cable through the upper hole in the main frame.

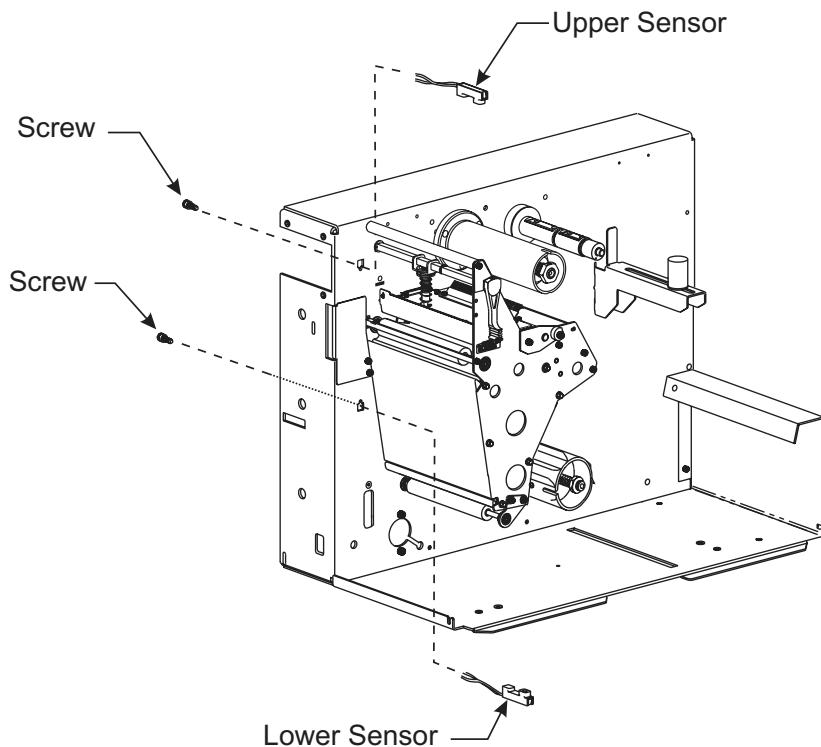


Figure 4-67. Take-Label Sensors

6. Position the sensor with the window facing down. Secure the sensor to the main frame with one screw.

NOTE: *The lower take-label sensor has black/red wires.*

7. Insert the lower take-label sensor connector and cable through the lower hole in the main frame.
8. Position the sensor with the window facing up. Secure the sensor to the main frame with one screw.

9. Refer to Figure 4-4 or Figure 4-5. Route the wires through the cable clamps and bring them to the main logic board. Make sure that the wires do not come in contact with any moving parts.
10. Connect the take label sensor connectors to the main logic board.

NOTE: *In the Peel-Off mode, if the two sensors are not aligned with each other, the take label LED illuminates, and the printer does not operate.*

DC Stepper Motor Maintenance

NOTES: *The stepper motor assemblies for 203-dpi and 300-dpi printers are not the same. Ensure that you have the correct replacement part before beginning this procedure.*

Make certain that the DC stepper motor is isolated and identified as the cause of printer non-conformance before beginning this procedure.

These instructions are very extensive. Read the entire procedure first, and get an understanding of all the steps involved. You may want to take notes and label parts as you go to facilitate the reassembly.

DC Stepper Motor Removal

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (O) position and disconnect the AC power cord. Disconnect the data cables.
2. Open the media cover.
3. Open the printhead and remove the media and ribbon. Close the printhead.
4. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
5. For printers with configuration number 10500-0XXX-XXXX or 10500-1XXX-XXXX, refer to RRP No. 3 on page 4-13 and remove the DC power supply.

or

For printers with configuration number 10500-2XXX-XXXX or 10500-3XXX-XXXX, refer to RRP No. 5 on page 4-16 and remove the AC/DC power supply.

6. Refer to RRP No. 9 on page 4-23 and remove the main drive belt.
7. Refer to RRP No. 11 on page 4-26 and remove the rewind drive belt.

WARNING:



WEAR PROTECTIVE EYE WEAR WHEN REMOVING E-RINGS, C-CLIPS, SNAP RINGS AND SPRINGS. ALL OF THESE ARE UNDER TENSION AND COULD FLY OFF WHILE BEING REMOVED.

8. Refer to Figure 4-68. Push the platen roller to the right (toward the media side of the printer). Remove the C-clip, washer, and right bearing off the platen roller as shown.
9. Push the lower peel roller to the right (toward the media side of the printer). Remove the C-clip and right bearing off the peel roller.

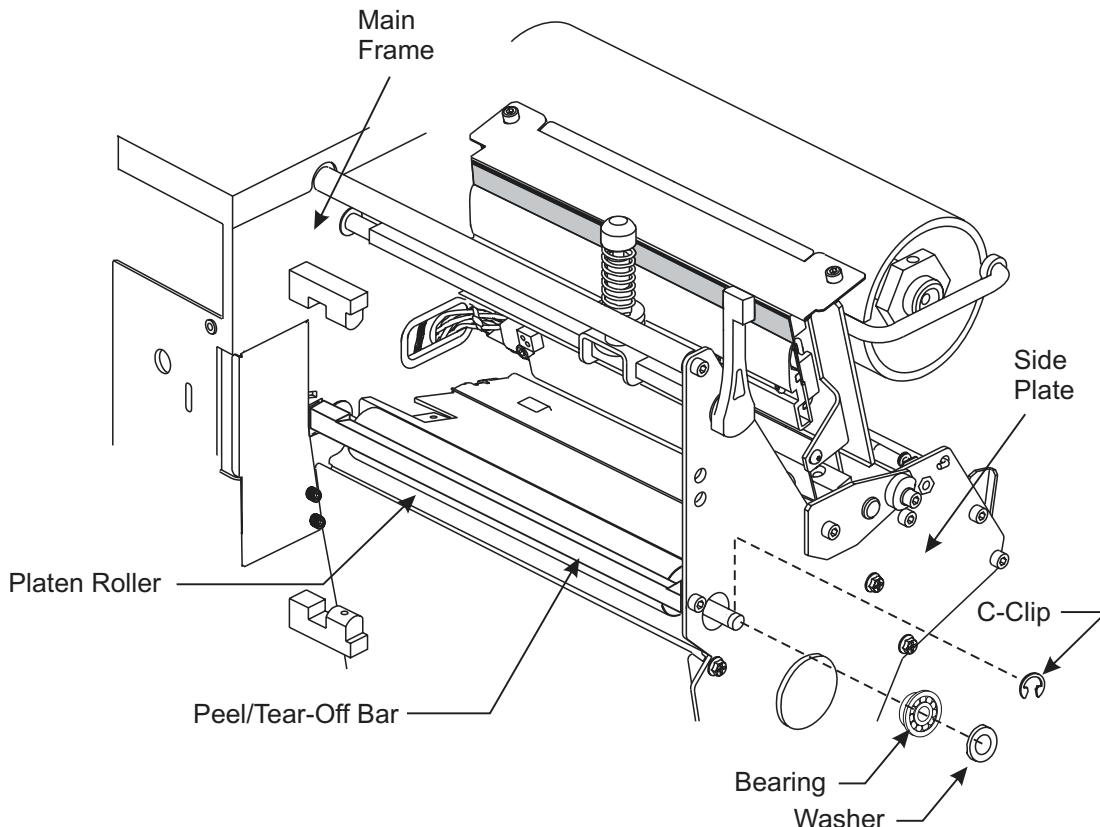


Figure 4-68. Freeing Side Plate for Removal

- Refer to Figure 4-69. Remove screw 12, the printhead lever, and the wave washer, as shown in Detail A.

NOTE: *To ensure that the side plate is reinstalled in the exact position, paint two thin lines from the side plate to the stepper motor housing.*

- On the media side of the printer, remove screws 1 through 11 to free the side plate from the motor housing.
- Remove the side plate.
- Refer to Figure 4-4 or Figure 4-5. Remove the hex nut and open the white plastic clamp that holds the stepper motor electrical lead. Disconnect the stepper motor electrical lead.
- Remove the four screws that attach the motor to the main frame.
- Remove the old motor with its electrical lead.

Install the Replacement DC Stepper Motor

- Refer to Figure 4-70. Pop out the old grommet and install the new grommet. Feed the motor power cable through the grommet. Turn the split in the grommet away from the large opening.
- Secure the replacement motor to the main frame with four screws. Torque the mounting screws to 15-16 inch-pounds (1.7–1.8 N·m).

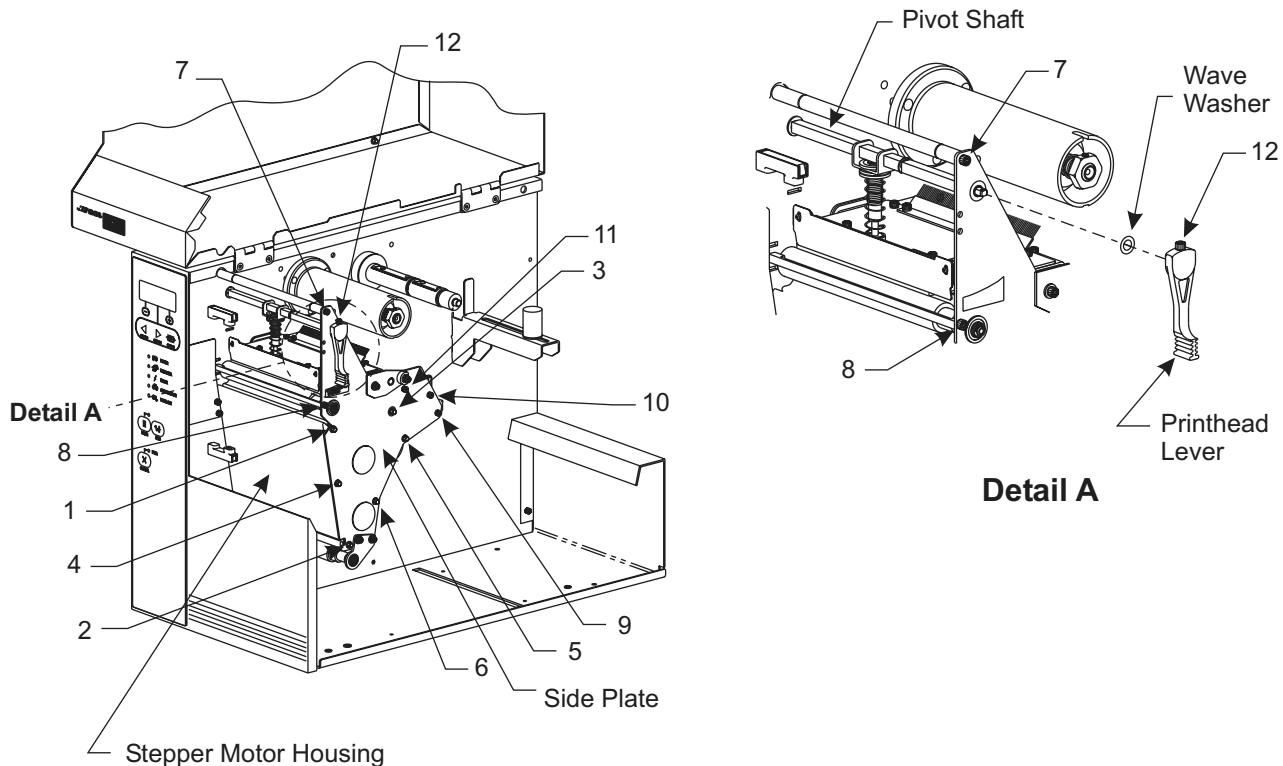


Figure 4-69. Side Plate Removal and Installation

NOTE: *After the side plate is reinstalled, there are many parts that need to be reinstalled and a series of adjustments that need to be made. Do not tighten any screws until all of the screws are installed.*

3. Insert the bearings for the platen roller and peel roller into the side plate.

NOTE: *As the side plate is attached, ensure that the print mechanism pivot bar is through the wear plate and that the platen roller, peel roller, and pivot shaft extend through the correct holes in the side plate.*

4. Refer to Figure 4-69. Attach the side plate to the stepper motor housing by installing screw 1 loosely.
5. Loosely install screws 2 through 6.
6. Align the side plate to its original position and tighten screws 1 through 6 to 16.5–17.0 inch-pounds (1.8–2.0 N·m).
7. Align the remaining rollers and the tear/peel bar with their respective holes in the side plate. Install screws 7 through 11 and tighten.
8. Reinstall the wave washer and printhead lever onto the pivot shaft. Tighten the retaining screw 12 so it threads into the pivot shaft.
9. Refer to Figure 4-4 or Figure 4-5. Route the stepper motor electrical lead and connector through the white plastic clamp. Secure the clamp with the hex nut. Reconnect the lead.

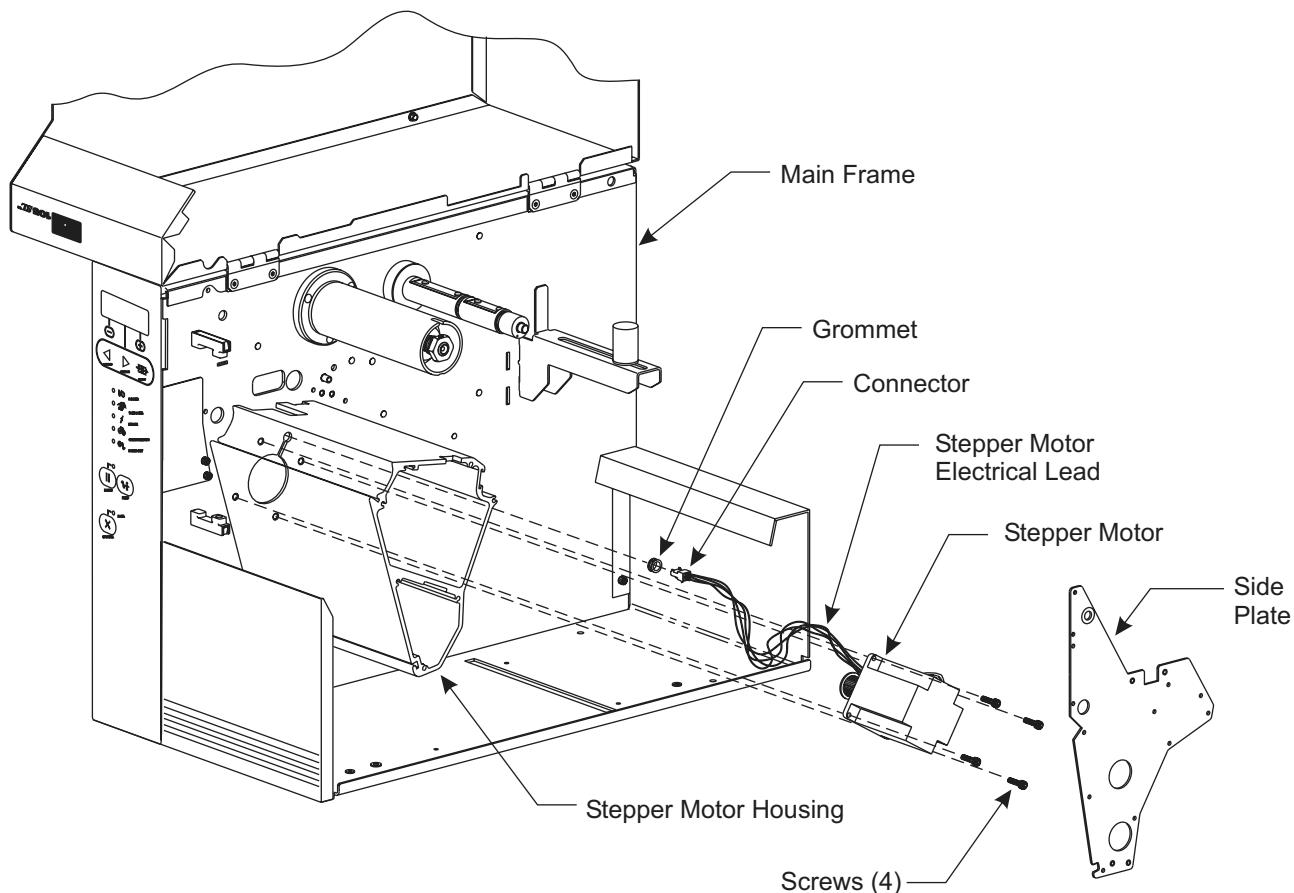


Figure 4-70. DC Stepper Motor Removal and Installation

10. Ensure that the peel roller extends through the bearing in the side plate, and secure with the C-clip.
11. Ensure that the platen roller extends through the bearing in the side plate, and secure with the washer and C-clip.
12. Refer to RRP No. 11 on page 4-26 and install the rewind drive belt.
13. Refer to RRP No. 9 on page 4-23 and install the main drive belt.
14. Refer to RRP No. 10 on page 4-25 and adjust the tension on the rewind drive belt.
Refer to RRP No. 8 on page 4-22 and adjust the tension on the main drive belt.
15. Reinstall the DC power supply or the AC/DC power supply, depending on configuration.
16. Reinstall the electronics cover.
17. Open the printhead and reinstall media and ribbon. Close the printhead.
18. Reconnect the data cables and the power cord.
19. Reconnect the power cable to the power source. Place the power switch in the On (I) position.
20. Refer to “Printhead Adjustments” on page 4-30 and perform all the procedures to achieve acceptable print quality.

Black Mark Sensor Replacement

Replace Black Mark Sensor

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (O) position and disconnect the AC power cord. Disconnect the data cables.
2. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
3. Refer to Figure 4-71. Remove two screws that secure the black mark sensor, and remove the sensor.

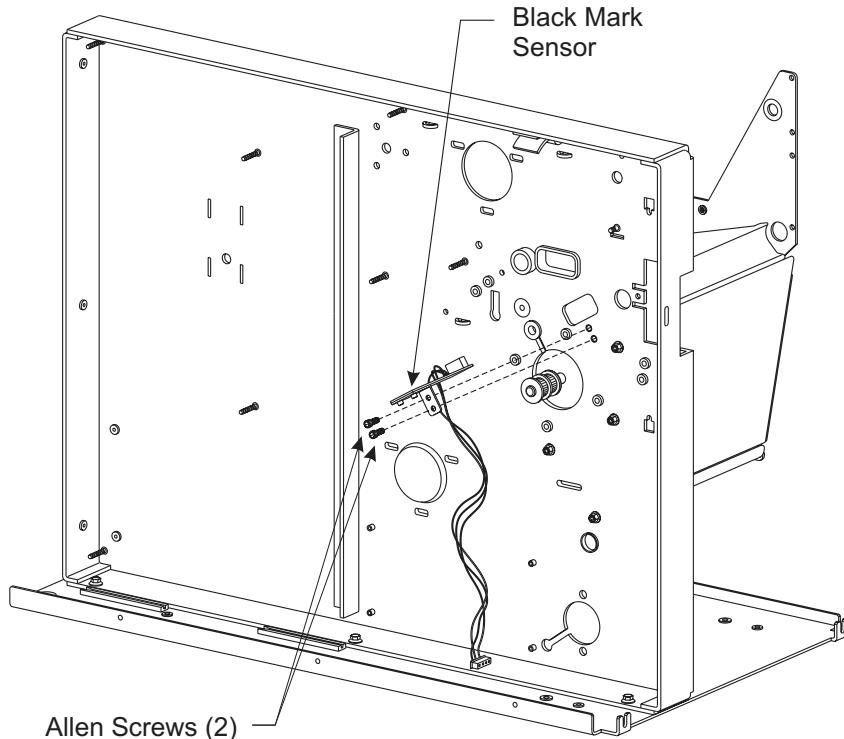


Figure 4-71. Black Mark Sensor Installation

4. Refer to Figure 4-4 or Figure 4-5. Follow the sensor leads back to the main logic board. Cut and replace the plastic wire ties as necessary. Remove the hex nuts holding the white cable clamps.
5. Disconnect the sensor connector from the main logic board.
6. Fasten the sensor in position with two screws.
7. Refer to Figure 4-4 or Figure 4-5. Route and secure the sensor electrical lead as neatly as possible to the main logic board. Secure the flat white cable clamps with hex nuts. Replace plastic wire ties as necessary.
8. Plug sensor electrical lead into the connector on the main logic board.
9. Reinstall the electronics cover.
10. Open the printhead and reinstall the media and ribbon. Close the printhead.
11. Reconnect the data cables and the power cord.

12. Reconnect the power cable to the power source. Place the power switch in the On (I) position.
13. Enter Printer Configuration and select MARK for sensor type.

Media Cover Replacement

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (O) position and disconnect the AC power cord. Disconnect the data cables.
2. Open the media cover.
3. Refer to Figure 4-72. Remove and discard the four screws that attach the media cover to the main frame of the printer.

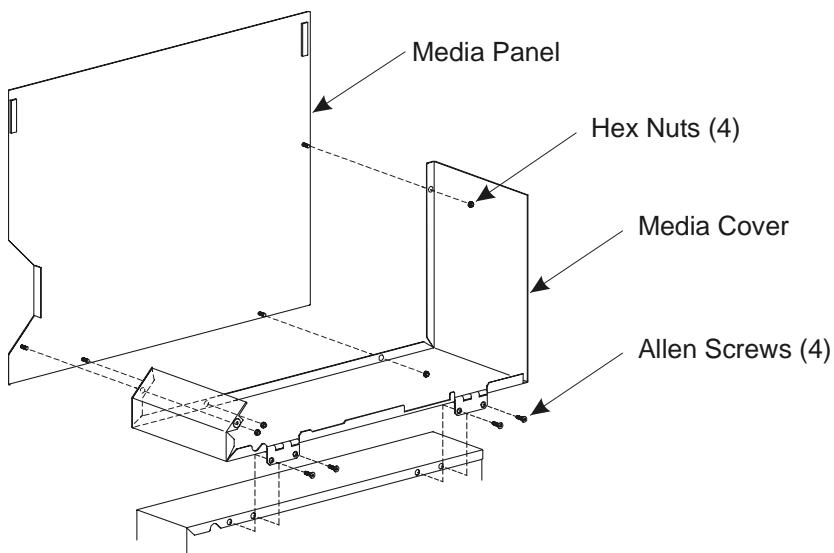


Figure 4-72. Media Cover Replacement

4. Remove the media cover.
5. Position the replacement media cover on top of the printer main frame as shown.
6. Secure the new media cover with four screws provided in the kit.
7. Remove the media panel from the old media cover, and attach the media panel to the new media cover with four hex nuts.
8. Close the new media cover.
9. Reconnect the data cables and the power cord.
10. Reconnect the power cable to the power source. Place the power switch in the On (I) position.

NOTE: *It is a good practice to keep the media cover closed while the printer is operating. Keeping the cover closed keeps the printhead cleaner, increases its service life, and maintains the highest print quality. The printer operates more quietly and stays cleaner with the cover closed. If the cover is open, it is more likely that the printer can be disturbed by a passer-by.*



SECTION 5

MAINTENANCE AND ASSEMBLY DRAWINGS

DESCRIPTION

Use the mechanical assembly drawings when troubleshooting or replacing components. Use the associated parts list when ordering replacement parts. Item parts that do not have associated part numbers are not available and need to be ordered using the next highest assembly number.

In each of the tables, the relation of individual items to assemblies or kits of which they are a part, are depicted by a dot and space (.) in the Description column. Items with a single dot are part of the item listed above them with no dot. Items with two dots are part of the item listed above them with one dot.

All parts shown in bold face are purchasable. All parts shown in light face italic are not purchasable, but may be available as part of a maintenance kit. Hardware shown in light face are not available as an individual part, but may be purchased as part of a hardware kit.



105SL™ PRINTER

Available Tools	
01773	Kit, Spindle Torque Adjustment
49368	Core, Ribbon
11302	Spring Scale, Tension Tester 0-1000 Grams
11303	Spring Scale, Tension Tester 0-2.25 Kilograms
47362	Kit, Preventative Maintenance

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Figure 5-19. Fanfold Bin Option	5-34

Table 5-1. Final Assembly (View 1)

Item	Part Number	Description	Qty
1	31040	Panel, Media Side	1
2	30269	Pad, PVC 4.00 x 0.037 x 0.62	2
3	01861	Label, Supplies	1
4	32039M	Kit, Maintenance, Media Cover	1
5	30407-008	. Screw, 6-32 x 0.5	4
6	01130	Nut, 6-32	4
7	40051M	Assy., Ribbon Supply Spindle (See Pages 5-18 & 5-19)	1
8	40050M	Assy., Ribbon Take-up Spindle (See Pages 5-20 & 5-21)	1
9	32038M	Kit, Electrical Cover	1
10	46396-006	Screw, 6-32 x 0.37, Phillips	2
11	32034M	Assy., Pivot Bar (See Page 5-25)	1
12	46609-4M	Take Label Sensor (See Pages 5-28 & 5-29)	1
13	<i>32011</i>	Roller, Main Platen (See Pages 5-14 & 5-15 for Platen Roller Kits)	1
14	48808	Bar, Peel/Tear	1
15	30023	Plate, Cover Cutter	1
16	<i>30392-004**</i>	Screw, 6-32 x 0.25	2
17	<i>46015*</i>	Bumper	4
18	<i>07435***</i>	Screw, Lock Hex, 6-32 x 0.37	4
19	46198M	Kit, Maintenance, Stepper Motor/Pulley 203dpi	1
	46199M	Kit, Maintenance, Stepper Motor/Pulley 300dpi	1
20	30826	Plug, Hole	2
21	<i>30256-B†</i>	Nut, Thumb 6-32 x 0.50	2
22	48342	Bracket, Front Cover	1
23	32053M	Assy., Media Hanger (See Page 5-17)	1

*Only available in quantities of 25 as Part Number HW46015

**Only available in quantities of 100 as Part Number HW07435

***Only available in quantities of 50 as Part Number HW30392-004

†Only available in quantities of 25 as Part Number HW30256-B

Bold = Part available for purchase

Light italic = Part not available for purchase, listed and shown for reference only

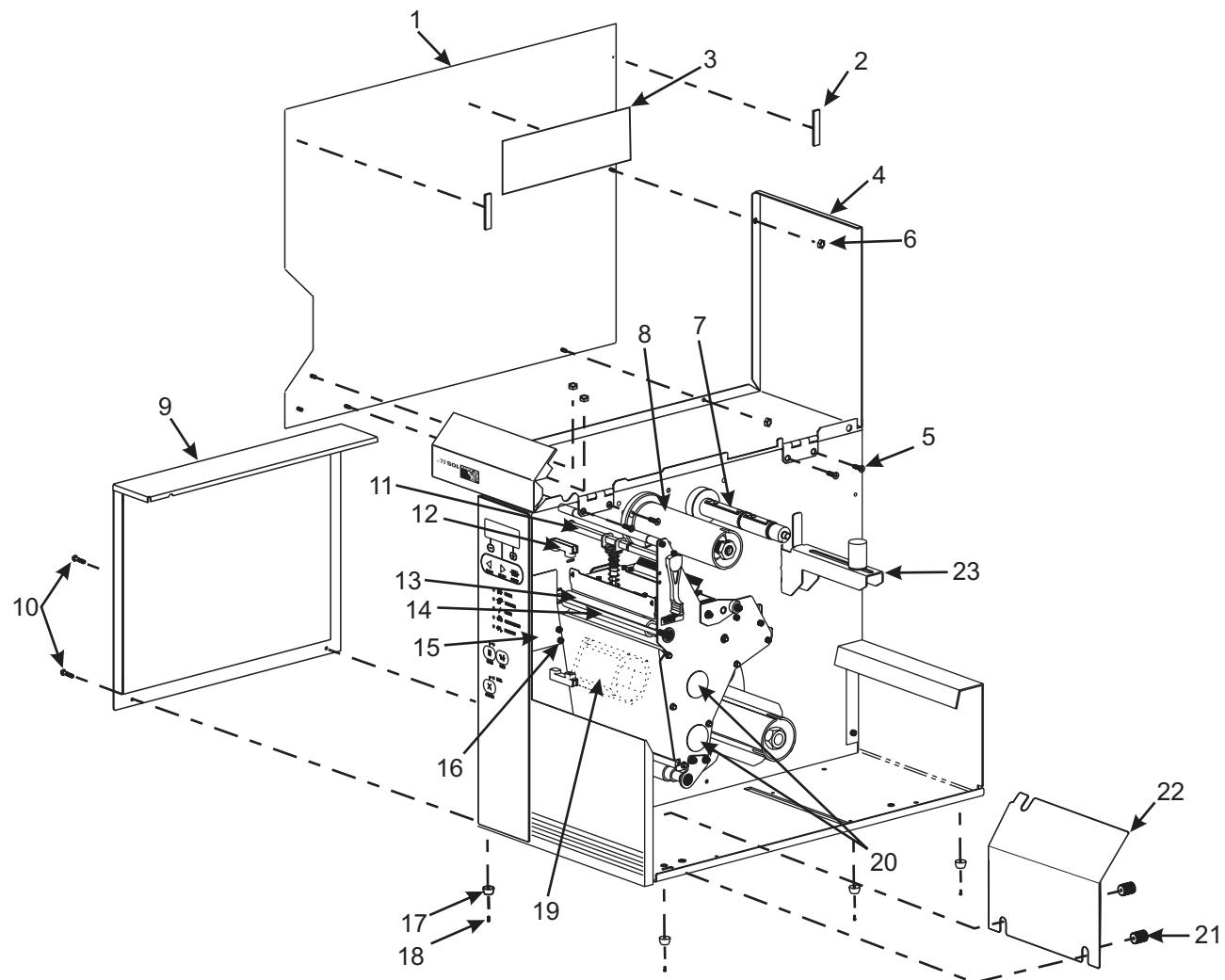


Figure 5-1. Final Assembly (View 1)

Table 5-2. Final Assembly (View 2)

Item	Part Number	Description	Qty
1	30392-004*	Screw, 6-32 x 0.25	9
2	01130	Nut, 6-32	1
3	22613M	Kit, Maintenance, Head Open Sensor	1
4	38226M	Kit, Maintenance, Reflective Sensor (Includes Tiewrap Q06020)	1
5	46091	Grommet, Rubber 1.25 x 0.625	1
6	40305RM	Assy., Media Guide Support (See Page 5-22)	1
7	32028M	Kit, Maintenance, Media Sensors (Upper and Lower)	1
8	30236	. Screw, 4-40 x 0.25	1
9	30494	. Washer, 0.32 x 0.119 x 0.062	1
10	35020	. Bracket, Media Sensor	1
11	40031	. Cover, Sensor Wire	1
12	40248	Plate, Shaft Wear	1
13	40154	Pin, Eccentric	1
14	<i>06268**</i>	Washer, Lock #6	1
15	<i>30392-008†</i>	Screw, 6-32 x 0.050	1
16	30956	Washer, Flat 0.207 x 0.146 x 0.030	2
17	30007-3	Shaft, Roller 0.187 x 6.50	1
18	48011-5	Roller	1

*Only available in quantities of 50 as Part Number HW30392-004

**Only available in quantities of 25 as Part Number HW06268

†Only available in quantities of 25 as Part Number HW30392-008

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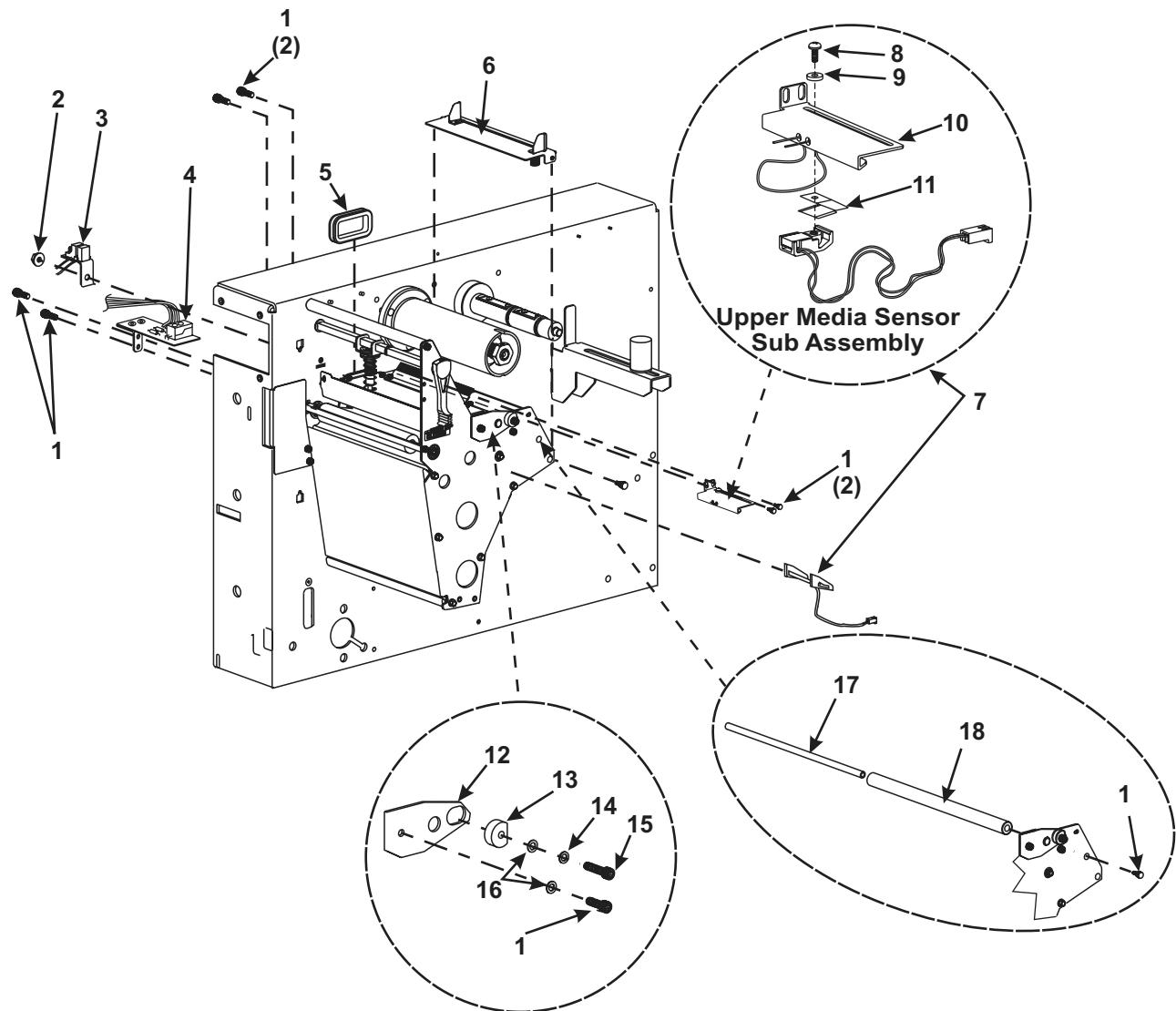


Figure 5-2. Final Assembly (View 2)

**Table 5-3. Final Assembly (View 3) for Configuration Numbers 10500-0XXX-XXXX
and 10500-1XXX-XXX**

Item	Part Number	Description	Qty
1	32091M	Kit, Maintenance, Main Logic Board w/PCMCIA Board	1
1	32092M	Kit, Maintenance, Main Logic Board w/o PCMCIA Board	1
2	30391-003*	Screw, 4-40 x 0.19	4
3	49036-1	Cover, PCB Option	2
4	49605-009	Cable, Power Switch	1
5	49669	Switch, Power	1
6	30406-006	Screw, 4-40 x 0.375	2
7	49673	Power Entry w/Fuse and Ground Wire	1
8	49699-01	Cable (Brown)	1
9	49699-06	Cable (Blue)	1
10	46392-006	Screw, Truss Head Phillips, 6-32 x 0.37	7
11	01159**	Washer, Lock #6	1
12	01130	Nut, 6-32 Hex Washer Head	3
13	22416†	Standoff, 4-40 Hex	2
14	01155††	Washer, Lock #4	2
15	07696	Screw, 4-40 x 0.31	2
16	30391-003‡	Screw, 4-40 x 0.19 (PCMCIA Only)	1
17	49013	Cover, Memory Card (PCMCIA Only)	1
18	32102	Panel, Rear w/o PCMCIA	1
	46102-1	Panel, Rear w/ PCMCIA	1
19	01822	Nut, 4-40	5
20	49313	Spacer (AC Power Supply)	2
Ref.	32060M	Kit. Maintenance, AC Power Supply	1
21	32060	. PCB Power Supply AC (See Page 5-24)	1
22	49285	. Pad, Insulation, AC Power Supply (See Page 5-24)	1
23	32017	Plate, Cover, Hanger	1
24	06319‡‡	Screw	4
25	30393-006§	Screw, 8-32 x 0.37	2
Ref.	32070M	Kit. Maintenance, DC Power Supply	1
26	32070	. Power Supply DC (See Page 5-24)	1
27	46392-006	Screw, Truss Head Phillips, 6-32 x 0.37	1
28	01130	Nut, 6-32 Hex Washer Head	2
29	49286	Pad, Insulation, DC Power Supply (See Page 5-24)	1
30	46015§§	Bumper	4
31	07435¶¶	Screw, Lock Hex, 6-32 x 0.37	4
32	46254	Plate, Cover Cutter	1

*Only available in quantities of 25 as Part Number HW30391-003

**Only available in quantities of 100 as Part Number HW01159

†Only available in quantities of 25 as Part Number HW22416

††Only available in quantities of 100 as Part Number HW01155

‡Only available in quantities of 25 as Part Number HW30391-003

‡‡Only available in quantities of 25 as Part Number HW06319

§Only available in quantities of 25 as Part Number HW30393-006

§§Only available in quantities of 25 as Part Number HW46015

¶Only available in quantities of 100 as Part Number HW07435

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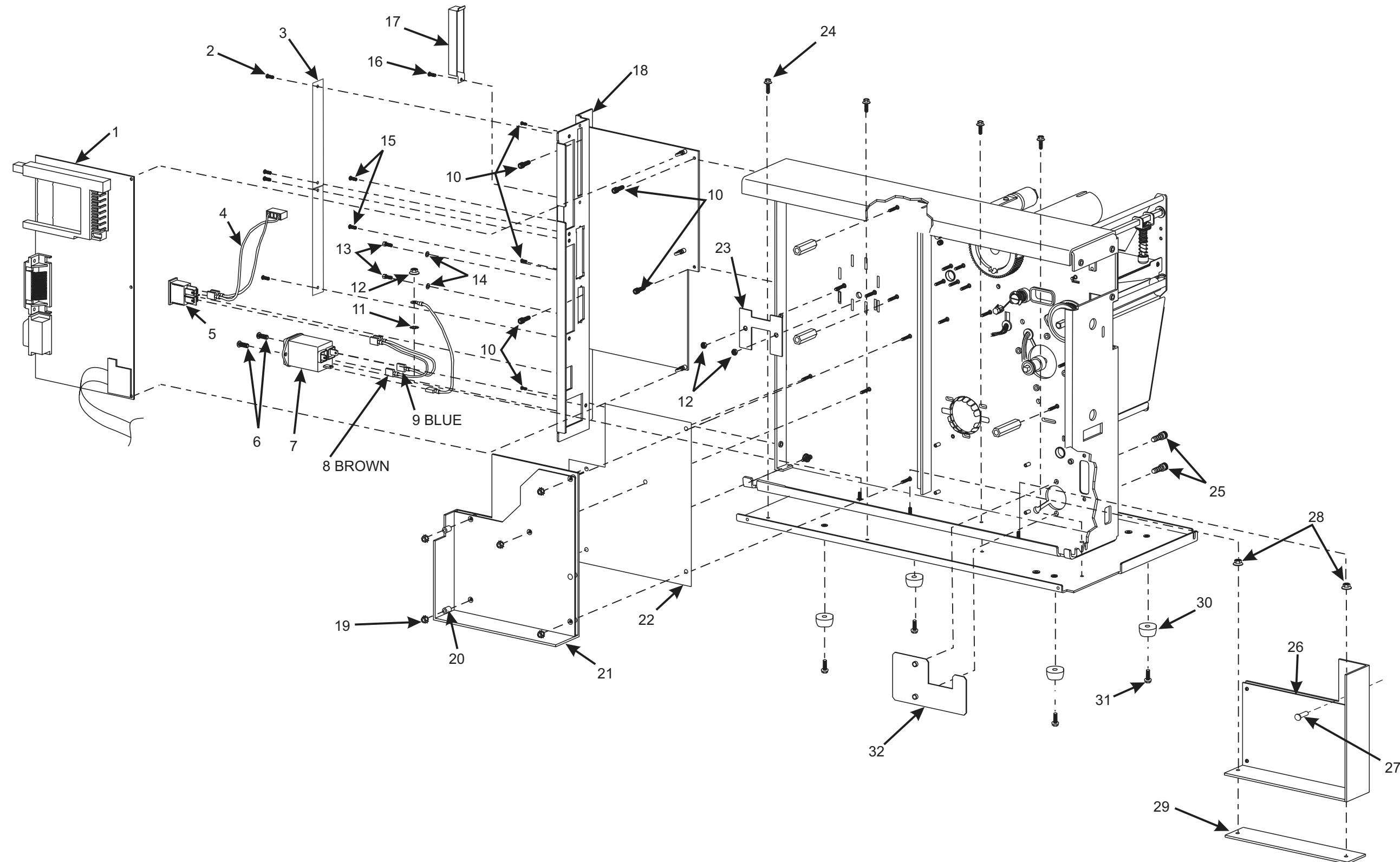


Figure 5-3. Final Assembly (View 3) for Configuration Numbers 10500-0XXX-XXXX and 10500-1XXX-XXXX

**Table 5-4. Final Assembly (View 4) for Configuration Numbers 10500-2XXX-XXXX
and 10500-3XXX-XXXX**

Item	Part Number	Description	Qty
1	<i>33030</i>	Assembly, PCB PCMCIA Option	1
2	22416	Standoff, 4-40 Hex	2
3	<i>01155*</i>	Washer, Lock #4	2
4	33000M	Kit, Maintenance MLB	1
5	07696	Screw, 4-40 x 0.31	2
6	46396-006	Screw, 6-32 x 0.37	3
7	30236	Screw, 4-40 x 0.25	1
8	<i>33019</i>	Cover, PCMCIA	1
	<i>49013</i>	Cover, Blank	1
9	46616	Spacer, PCB Locking	1
10	30236	Screw, 4-40 x 0.25	3
11	33123	Switch, Rocker ACDpst Mini	1
12	33124	Power Entry Filtered	1
13	33127-012	Cable, AC Power Switch	1
14	33050M	Kit Maintenance AC/DC Power Supply	1
15	<i>33058</i>	Shield, High Voltage	1
16	46396-006	Screw, 6-32 x 0.37	2
17	01130	Nut, 6-32	2
18	33059	Insulator, Heatsink	1
19	46396-012	Screw, 6-32 x 0.750	1
20	<i>07435**</i>	Screw, Lock Hex, 6-32 x 0.37	4
21	<i>46015†</i>	Bumper	4

*Only available in quantities of 100 as Part Number HW01155

**Only available in quantities of 100 as Part Number HW07435

†Only available in quantities of 25 as Part Number HW46015

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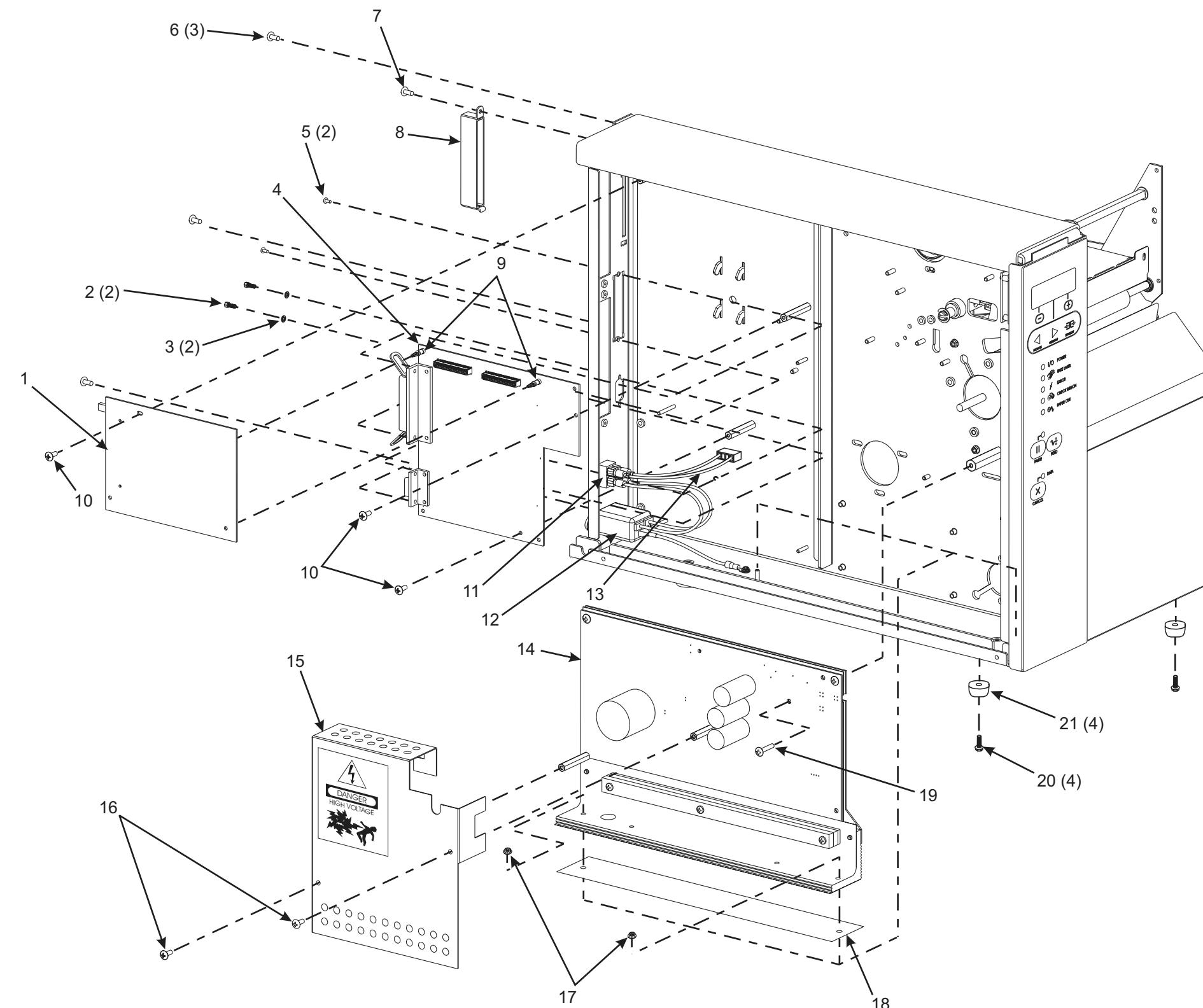


Figure 5-4. Final Assembly (View 4) for Configuration Numbers 10500-2XXX-XXXX and 10500-3XXX-XXXX

Table 5-5. Printhead Support Assembly

Item	Part Number	Description	Qty
1	48182*	Rivet, Snap 0.138 x 0.08 Plastic	2
2	32018	Pad, Press	1
3	32013	Bracket, Head Mounting	1
4	32012	Plate, Press	1
5	30781	Cable, Printhead Ground	1
6	01159**	Washer, Lock External #6	4
7	30392-004†	Screw, 6-32 x 0.25	11
8	31899	Brush, Static Removal	1
9	40013††	Plate, Washer	1
10	06268‡	Washer, Lock #6	4
11	30402-006‡‡	Screw, 1/4-20 x 0.38	2
12	—	Screw, Printhead Mounting	1
13	46481-1§	Screw, Head Adjust M3.5	2
14	40194§§	Washer, Curved 0.344 x 0.172 x 0.006	2
15	40193¶	Washer, Flat 0.406 x 0.172 x 0.048	2
16	48162	Bar, Head Pivot	1
17	48014	Plate, Guard	1
18	30494	Washer, Neoprene 0.32 x 0.119 x 0.062	1
19	01153¶¶	Washer, Flat 0.250 x 0.125 x 0.028	1
20	30391-003«	Screw, 4-40 x 0.19	1
21	46665M	Kit, Maintenance, Sensor, Ribbon (Includes Tiewrap Q06020)	1
22	32080	Cable, Printhead Power for Configuration Numbers 10500-0XXX-XXXX and 10500-1XXX-XXXX	1
22	33141	Cable, Printhead Power for Configuration Numbers 10500-2XXX-XXXX and 10500-3XXX-XXXX	1
23	32432M	Kit, Maintenance, Printhead (200 DPI)	1
23	32433M	Kit, Maintenance, Printhead (300 DPI)	1
24	32075	Cable, Printhead Data for Configuration Numbers 10500-0XXX-XXXX and 10500-1XXX-XXXX	1
24	33129	Cable, Printhead Data for Configuration Numbers 10500-2XXX-XXXX and 10500-3XXX-XXXX	1
25	48017	Plate, Ribbon Strip	1
26	46882-003	Screw, 4-40 x 3/16	2
27	48099-5	Roller, 0.332 x 0.215 x 5.820	1
28	30007-4	Shaft, Roller 0.187 x 5.875	1

*Only available in quantities of 10 as Part Number HW48182

**Only available in quantities of 100 as Part Number HW01159

†Only available in quantities of 50 as Part Number HW30392-004

††Only available in quantities of 10 as Part Number HW40013

‡Only available in quantities of 25 as Part Number HW06268

‡‡Only available in quantities of 25 as Part Number HW30402-006

§Only available in quantities of 5 as Part Number HW46481

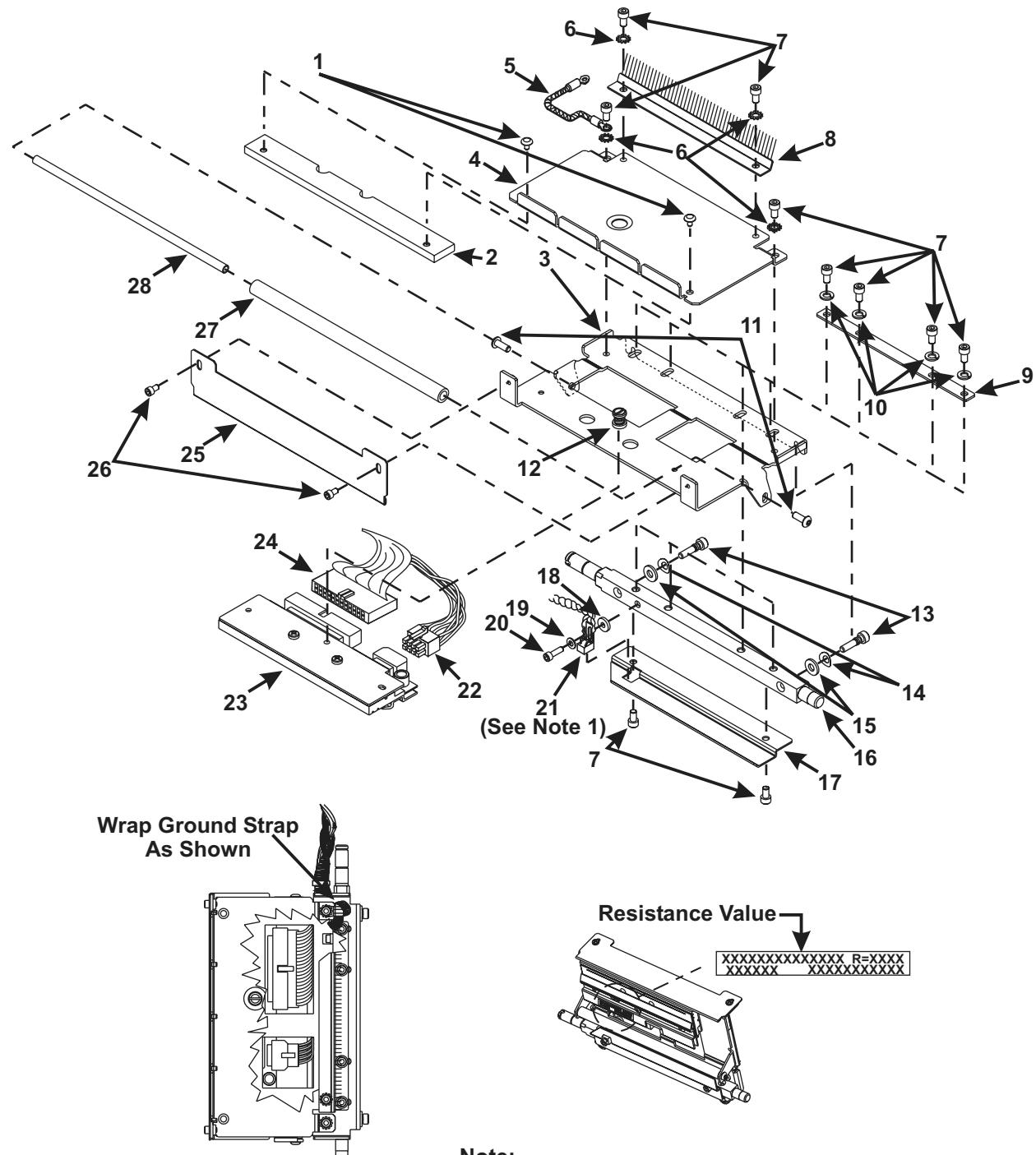
§§Only available in quantities of 25 as Part Number HW40194

¶Only available in quantities of 25 as Part Number HW40193

¶¶Only available in quantities of 100 as Part Number HW01153

«Only available in quantities of 25 as Part Number HW30391-003

Bold = Part available for purchase*Light italic* = Part not available for purchase, listed and shown for reference only

**Note:**

1. Position Ribbon Sensor Tab not to be Flush With Top Edge of Pivot Bar. Gap 0.010 Min./0.030 Max. Below Top Edge
2. Remove Tab as Shown from Printhead Data Connector. Remaining Printhead Data Connector Tab must Snap over Connector

Figure 5-5. Printhead Support Assembly

Table 5-6. Main and Lower Platen Rollers

Item	Part Number	Description	Qty
1	32011M	Kit, Maintenance, Platen Roller (Main)	1
2	32011	. Assembly, Platen Roller	1
3	49688	. Bearing, Flanged Ball	2
4	30247*	. Washer, Flat 0.42 x 0.260 x 0.0747	1
5	02252	. Ring, Crescent External 0.250	1
6	22004-2	. Spacer	1
7	32101M	Kit, Maintenance, Lower Platen Roller	1
8	32011	. Assembly, Platen Roller	1
9	49688	. Bearing, Flanged Ball	2
10	30247*	. Washer, Flat 0.42 x 0.260 x 0.0747	1
11	02252	. Ring, Crescent External 0.250	1
12	22004-1	. Spacer	1
13	40019	. Plate, Roller Adjust	1
14	40193***	. Washer, Flat 0.406 x 0.172 x 0.048	2
15	30392-004**	. Screw, 6-32 x 0.25	2
16	40355M	Kit, Maintenance, Platen Pulley (12 & 8 Dots/mm)	1
17	30423-006†	. Screw, 8-32 x 0.375	2
18	40080-2	. Pulley	1
19	30914M	Kit, Maintenance, Rewind (12 & 8 Dots/mm)	1
20	30423-006†	. Screw, 8-32 x 0.375	2
21	48016	. Pulley	1

*Only available in quantities of 25 as Part Number HW30247

**Only available in quantities of 50 as Part Number HW40193

***Only available in quantities of 25 as Part Number HW30392-004

†Only available in quantities of 25 as Part Number HW30423-006

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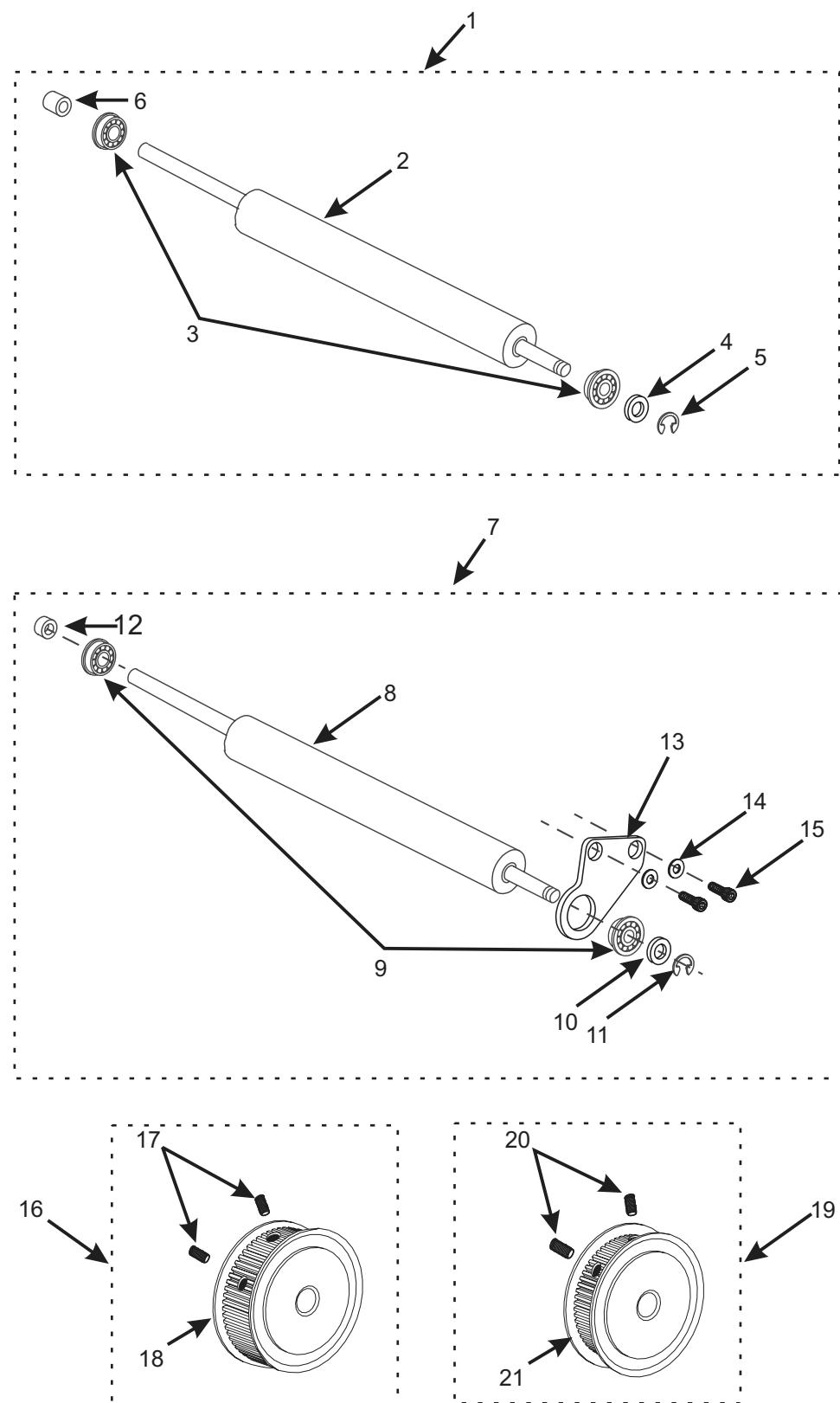


Figure 5-6. Main and Lower Platen Rollers



Table 5-7. Media Supply Hanger

Item	Part Number	Description	Qty
1	32053M	Kit, Maintenance, Media Supply Hanger	1
2	35082	. Guide, Media	1
3	35136*	. Washer, Nylon 0.252 x 0.472 x 0.059	2
4	32053	. Bracket, Media Hanger	1
5	30466**	. Washer, 0.26 x 0.63 x 0.06	1
6	35137†	. Ring, Retainer 0.250 Diameter	1

*Only available in quantities of 25 as Part Number HW35136

**Only available in quantities of 25 as Part Number HW30466

†Only available in quantities of 25 as Part Number HW35137

Bold = Part available for purchase

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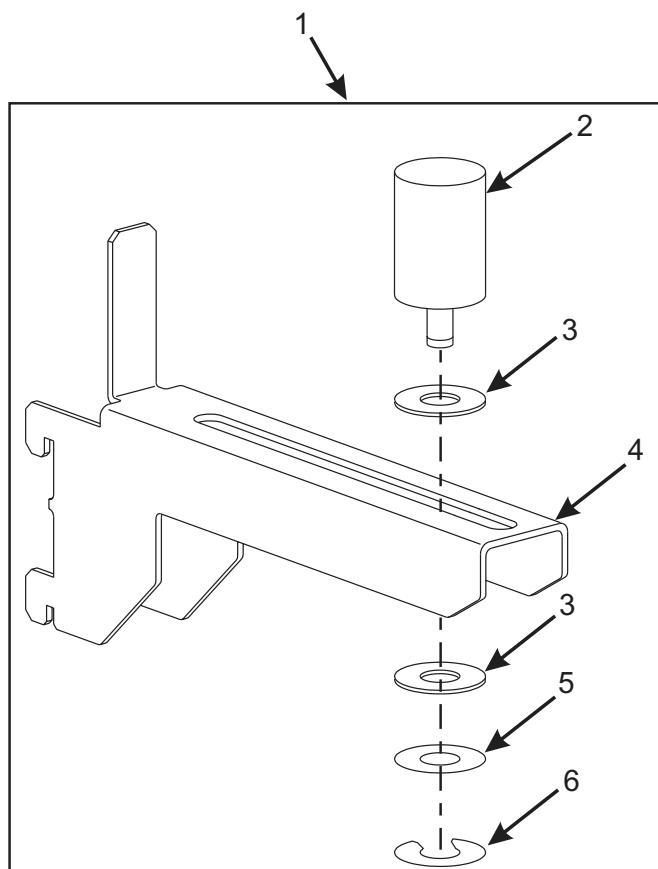


Figure 5-7. Media Supply Hanger

Table 5-8. Ribbon Supply Spindle

Item	Part Number	Description	Qty
1	40051M	Assembly, Maintenance, Ribbon Supply Spindle	1
2	<i>30224*</i>	. Ring, Crescent External 0.375	2
3	40066	. Support, Spindle Ribbon Supply	1
4	<i>30146**</i>	. Washer, Thrust 0.687 x 0.375 x 0.093	4
5	<i>30145†</i>	. Bearing, Thrust	2
6	40333M	. Assembly, Inner Spindle	1
7	<i>40332</i>	. . Inner Spindle	1
8	40070-2	. . Blade, Ribbon RS Inner	1
9	30401-002	. . Screw, 4-40 x 0.12	2
10	<i>30041-6††</i>	. Washer, Felt 13/16 x 13/32 x 3/32	1
11	<i>40331</i>	. Spindle, Outer Ribbon Supply	1
12	40068	. . Outer Spindle	1
13	40070-1	. . Blade, Ribbon RS Outer	1
14	30401-002	. . Screw, 4-40 x 0.12	2
15	<i>30041-4‡</i>	. Washer, Felt 29/32 x 1/2 x 3/32	1
16	30344M	. Assembly, Maintenance, Clutch Plate and Bearing	1
17	<i>30097‡‡</i>	. Spring, Compression 0.660 x 0.528 x 0.066	1
18	<i>30042§</i>	. Spring, Torsion 0.739 x 0.805	1
19	30071	. Housing, Spring	1
20	<i>07321§§</i>	. Screw, 6-32 x 0.18	2
21	40067	. Shaft, Ribbon Supply	1
N/S	<i>01688-140¶</i>	Kit, Spindle Felt Pads (For all Spindles)	
N/S - Not Shown			

*Only available in quantities of 50 as Part Number HW30224

**Only available in quantities of 50 as Part Number HW30146

†Only available in quantities of 25 as Part Number HW30145

††Only available in quantities of 25 as Part Number HW30041-6

‡Only available in quantities of 25 as Part Number HW30041-4

‡‡Only available in quantities of 50 as Part Number HW30097

§Only available in quantities of 10 as Part Number HW30042

§§Only available in quantities of 50 as Part Number HW07321

¶Contains:	1	01889	2 oz. Bottle of Silicone Oil
	2	30041-1	Washer, Felt 11/4" x 19/32" x 3/32"
	2	30041-2	Washer, Felt 21/4" x 19/32" x 3/32"
	2	30041-3	Washer, Felt 7/8" x 5/8" x 3/32"
	1	30041-4	Washer, Felt 29/32" x 1/2" x 3/32"
	1	30041-5	Washer, Felt 7/8" x 13/32" x 3/32"
	1	30041-6	Washer, Felt 13/16" x 13/32" x 3/32"
	2	30041-7	Washer, Felt 15/8" x 17/32" x 0.093"
	1	30042	Spring, Torsion 0.739 x 0.805

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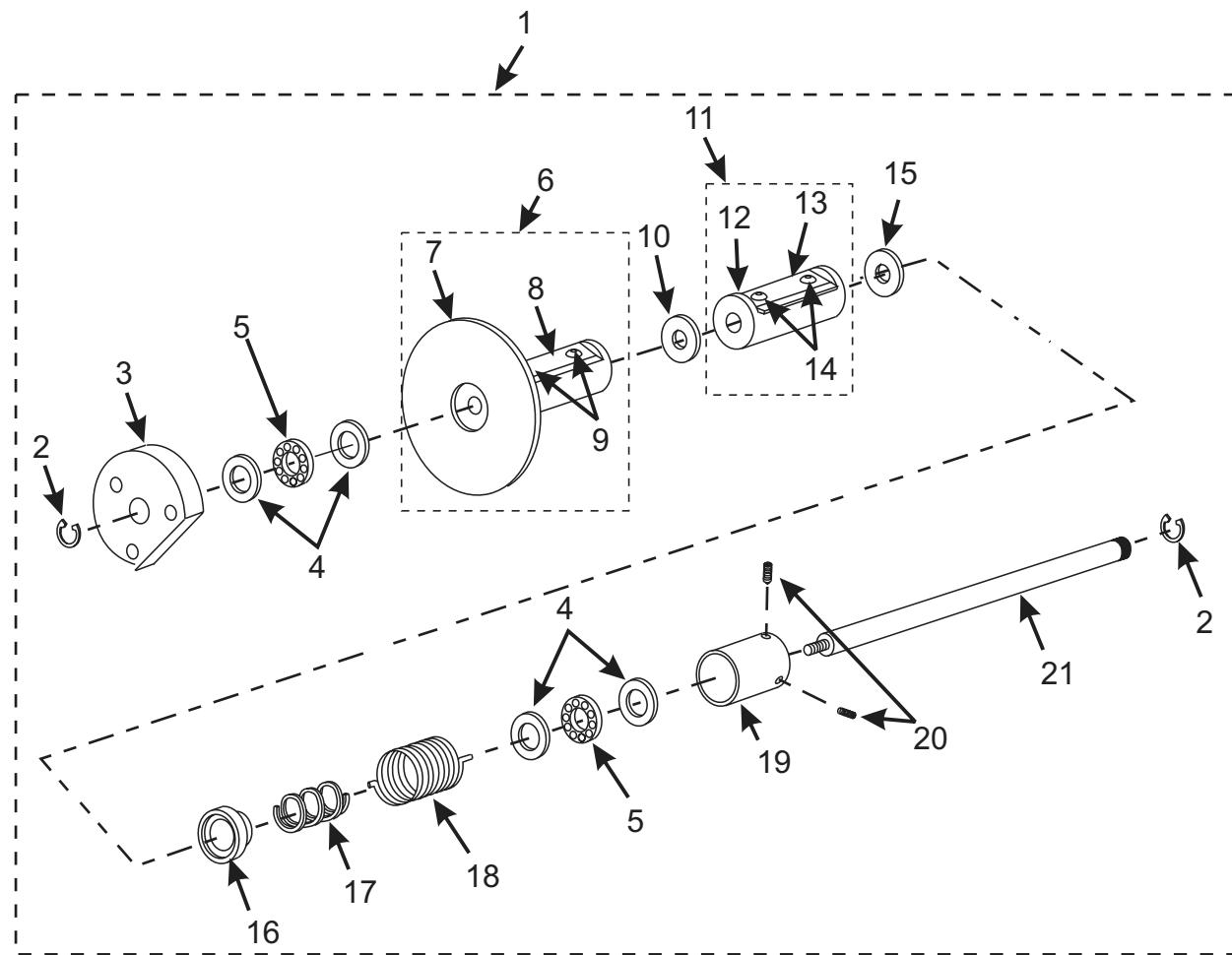


Figure 5-8. Ribbon Supply Spindle

Table 5-9. Ribbon Take-up Spindle and Pulley

Item	Part Number	Description	Qty
1	40050M	Kit, Maintenance, Ribbon Take-up	1
2	<i>30328-7</i>	. Assembly, Bearing Support	1
3	<i>48056</i>	. . Bearing Support	
4	30422-002	. . Screw, 6-32 x 0.25	1
5	<i>47275</i>	. . Spring, Compression 0.088 x 0.250	1
6	30438	. . Spring Support	1
7	30112	. . Bearing, Ball 1.125 x 0.500 x 0.312	2
8	<i>30118*</i>	. . E-Ring External 0.5 x 0.042	1
9	40057	. . Shaft, Spindle Media and Ribbon Take-up	1
10	30422-006	. . Screw, 6-32 x 0.375	2
11	30073	. . Plate, Clutch	2
12	<i>30041-1**</i>	. . Washer, Felt 1-1/4 x 19/32 x 3/32	2
13	<i>40327†</i>	. . Assembly, Ribbon Spindle	1
14	<i>30116††</i>	. . Spring, Compression 0.720 x 0.610 x 0.625	1
15	<i>07321‡</i>	. . Screw, 6-32 x 0.18	2
16	30058-2	. . Nut, Shoulder 0.50-20	1
17	40490-2	. . Hook, 6 inch	1
18	31336M	Kit, Maintenance MTU/RTU	1
19	30080-4	. . Pulley	1
20	<i>30108</i>	. . Clutch, 0.75 x 0.50 x 0.50	1
21	<i>46909</i>	. . Spacer	1
N/S	<i>01688-140‡‡</i>	Kit, Spindle Felt Pads for all Spindles	

*Only available in quantities of 25 as Part Number HW30118

**Only available in quantities of 50 as Part Number HW30041-1

†Only available as a Service Kit as Part Number 40327M

††Only available in quantities of 25 as Part Number HW30116

‡Only available in quantities of 50 as Part Number HW07321

‡‡Contains:	1	01889	2oz. Bottle of Silicone Oil
	2	30041-1	Washer, Felt 11/4" x 19/32" x 3/32"
	2	30041-2	Washer, Felt 21/4" x 19/32" x 3/32"
	2	30041-3	Washer, Felt 7/8" x 5/8" x 3/32"
	1	30041-4	Washer, Felt 29/32" x 1/2" x 3/32"
	1	30041-5	Washer, Felt 7/8" x 13/32" x 3/32"
	1	30041-6	Washer, Felt 13/16" x 13/32" x 3/32"
	2	30041-7	Washer, Felt 15/8" x 17/32" x 0.093"
	1	30042	Spring, Torsion 0.739 x 0.805

Bold = Part available for purchase*Light italic* = Part not available for purchase, listed and shown for reference only

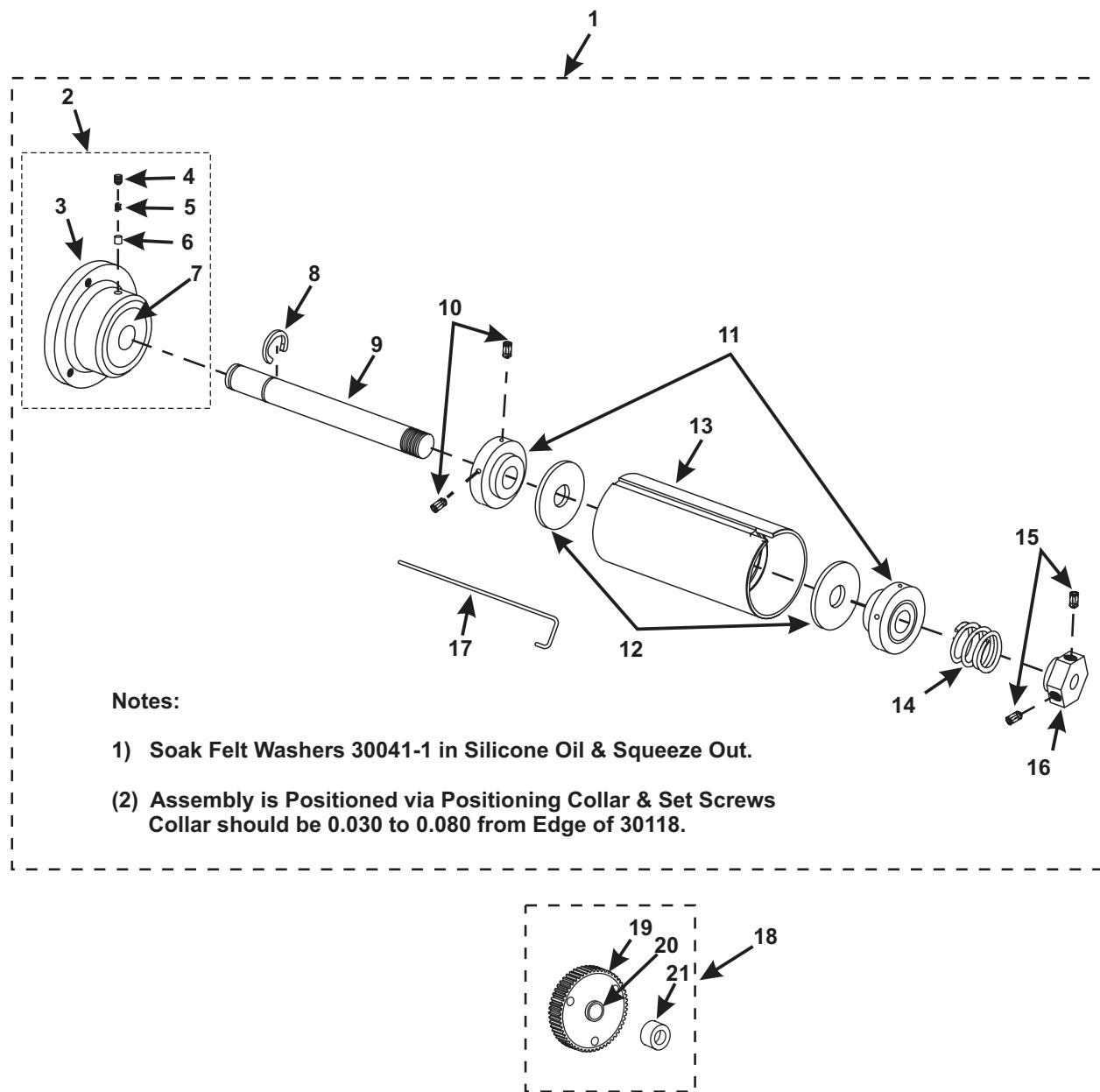


Figure 5-9. Ribbon Take-up Spindle and Pulley

Table 5-10. Media Guide Assembly

Item	Part Number	Description	Qty
1	40305RM	Kit, Maintenance, Media Guide	1
2	30153	. Guide, Stationary Media	1
3	01130	. Nut, 6-32	1
4	40252R	. Support, Media Guide	1
5	30033	. Guide, Adjustable Media	1
6	<i>30256-B*</i>	. Nut, Thumb 6-32 x 0.50, Brass	1
7	<i>30392-004**</i>	. Screw, Cap 6-32 x 0.25	2

*Only available in quantities of 25 as Part Number HW30256-B

**Only available in quantities of 50 as Part Number HW30392-004

Bold = Part available for purchase
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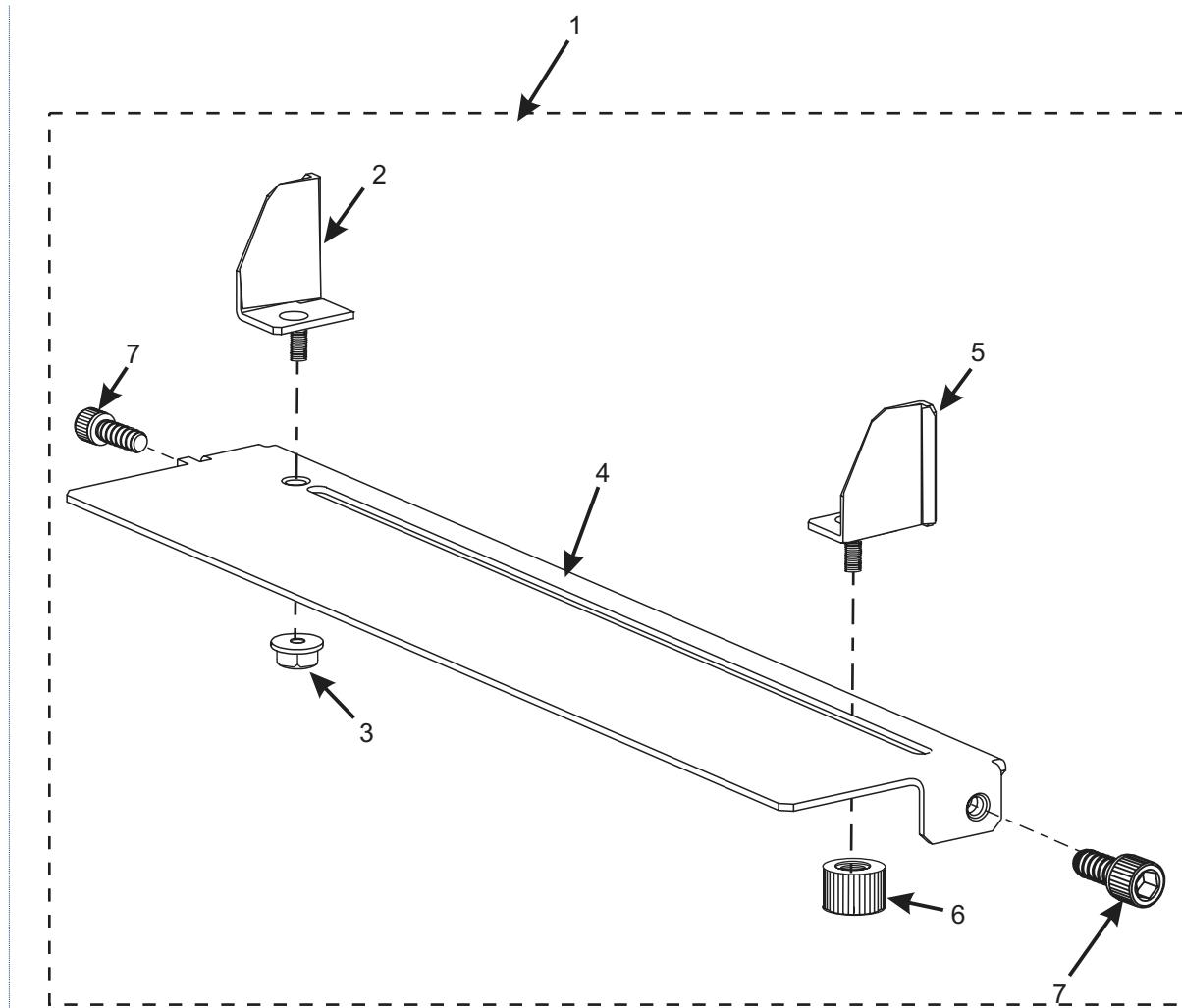


Figure 5-10. Media Guide Assembly

Table 5-11. Front Panel and LCD Display

Item	Part Number	Description	Qty
1	32021M	Kit, Maintenance, Front Membrane Switch	1
2	<i>Ref.</i>	. Front Panel and Membrane Switch Assy.	1
3	01130	. Nut, 6-32	2
4	<i>30208*</i>	. Washer, Flat 0.500 x 0.191 x 0.030	2
5	32043M	Kit, Maintenance, LCD	1
6	<i>32043</i>	. LCD Display	1
7	01130	. Nut, 6-32	1

*Only available in quantities of 25 as Part Number HW30208

Bold = Part available for purchase

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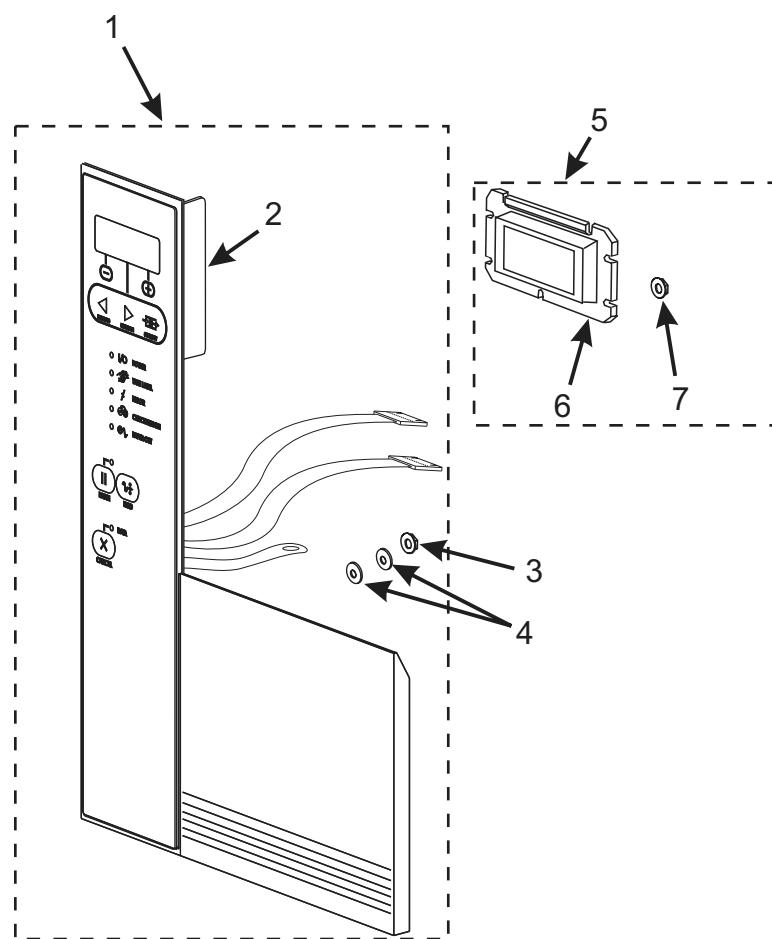


Figure 5-11. Front Panel and LCD Display

Table 5-12. AC and DC Power Supplies

Item	Part Number	Description	Qty
1	32060M	Kit, Maintenance AC Power Supply (Configuration Numbers 10500-0XXX-XXXX and 10500-1XXX-XXXX)	1
2	<i>32060</i>	. Assembly, AC Power Supply	1
3	49285	. Pad, Insulation	1
4	32070M	Kit, Maintenance DC Power Supply (Configuration Numbers 10500-0XXX-XXXX and 10500-1XXX-XXXX)	1
5	<i>32070</i>	. Assembly, DC Power Supply	1
6	49286	. Pad, Insulation	1
7	01130	. Nut, 6-32	2
8	46392-006	. Screw, 6-32 x 0.37	1
9	33050M	Kit, Maintenance AC/DC Power Supply (Configuration Numbers 10500-2XXX-XXXX and 10500-3XXX-XXXX)	1
10	<i>33050</i>	. Assembly, AC/DC Power Supply	1
11	<i>33056</i>	. Pad, Insulation	1

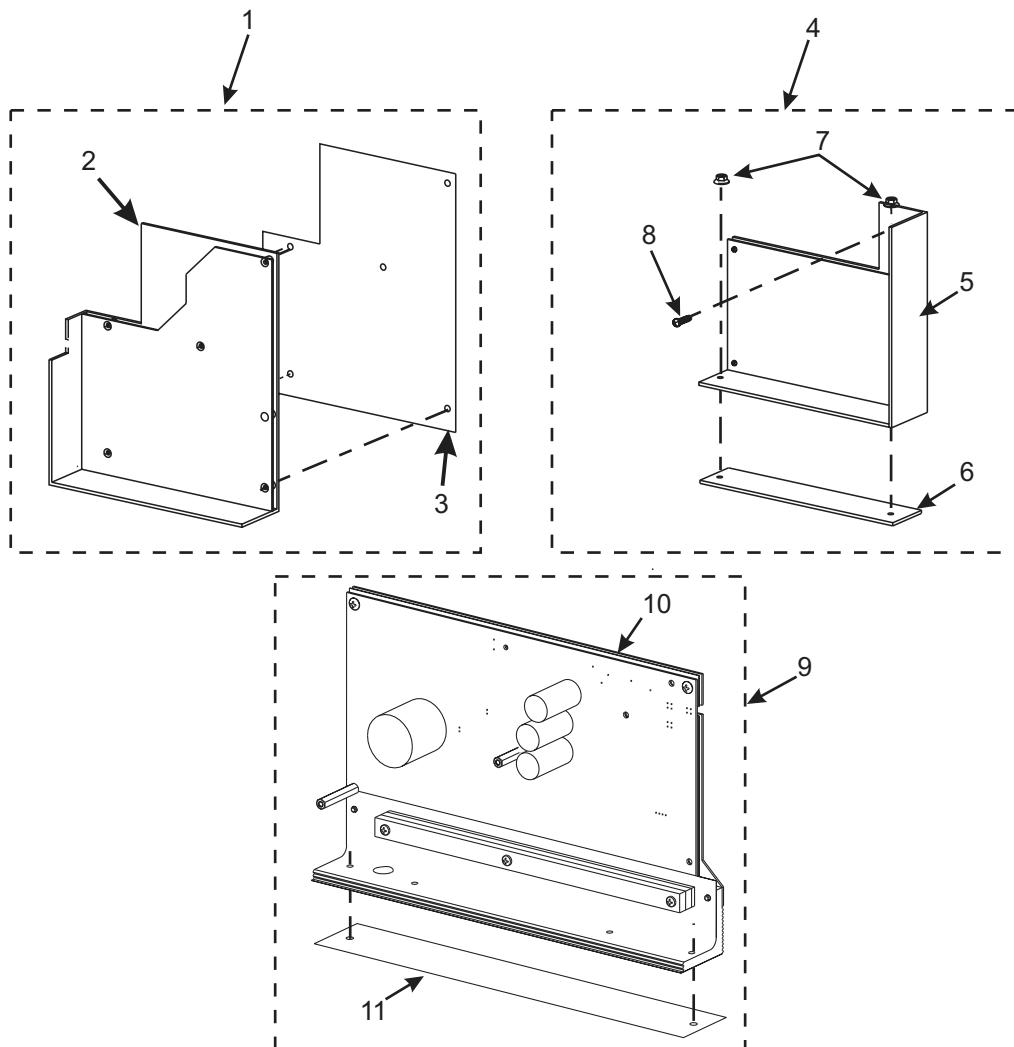
Bold = Part available for purchase*Light italic* = Part not available for purchase, listed and shown for reference only

Figure 5-12. Power Supplies

Table 5-13. Pivot Bar Assembly

Item	Part Number	Description	Qty
1	32034M	Kit, Maintenance Pivot Bar	1
2	<i>46203</i>	. Shield, Tri-mount	1
3	<i>46352</i>	. Flag, Sensor	1
4	35099M	. Assembly, Maintenance, Toggle Move	1
5	30391-006	. Screw, 4-40 x 0.37	1
6	<i>07229*</i>	. Washer, Wave 0.49 x 0.33 x 0.0075	1
7	<i>30909</i>	. Printhead Lever	1
8	<i>46105**</i>	Bearing, Nylon 0.312 x 0.251 x 0.140	1
9	<i>30105†</i>	Bearing, Nylon 0.312 x 0.251 x 0.078	1

*Only available in quantities of 50 as Part Number HW07229

**Only available in quantities of 25 as Part Number HW46105

†Only available in quantities of 25 as Part Number HW30105

Bold = Part available for purchase

Light italic = Part not available for purchase, listed and shown for reference only

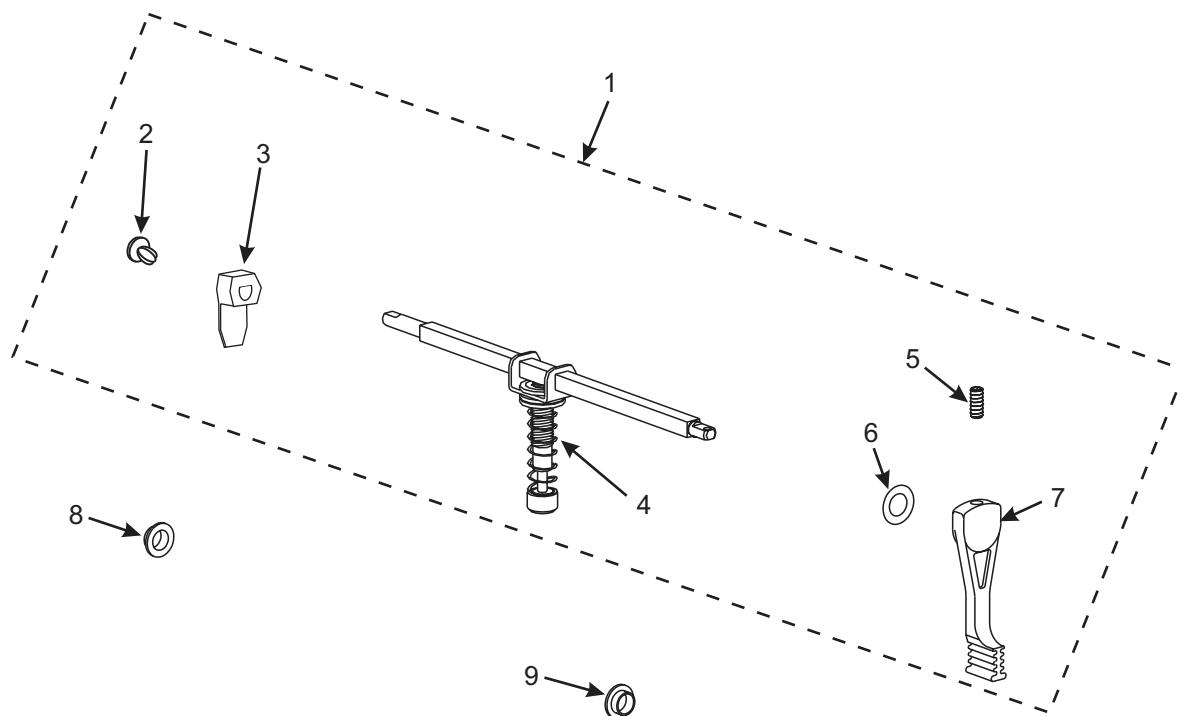


Figure 5-13. Pivot Bar Assembly

Table 5-14. Backing Rewind Assembly

Item	Part Number	Description	Qty
Ref	33180	Kit, Option Backing Rewind	
1	30393-006*	. Screw, 8-32, Socket Head Cap	3
2	40193**	. Washer, Flat 0.406 x 0.172 x 0.048	6
3	32011	. Lower Platen Roller (See Pages 5-12 & 5-13 for Platen Roller Kits)	1
4	49688	. Bearing, Flanged	2
5	02252	. C-Ring	1
6	22004-1	. Spacer	1
7	40019	. Plate, Roller Adjust	1
8	30392-004†	. Screw, 6-32, Socket Head Cap	3
9	45055	. Assy., Spindle Backing Rewind	1
10	30334-7	. . Assembly, Bearing Housing	1
11	40490-2	. Hook, Rewind	1
12	31336	. RTU/MTU Pulley (See Pages 5-18 & 5-19 for Spindle Kits)	1
13	30118††	. E-Ring 0.500 x 0.042	1
14	46909	. Spacer 0.750 x 0.520 x 0.3	1
15	45189-5	. Belt, Rewind Drive	1
16	30114‡	. Washer, Flat 0.76 x 0.51 x 0.03	1
17	30115‡‡	. Washer, Wave 0.740 x 0.520 x 0.080	1
18	30257	. Pulley, Rewind (12 Dot/mm)	1
	48018	. Pulley, Rewind (8 Dot/mm)	1
19	46609-4M	. Assembly, Lower Take Label Sensor (Black/Red Wires)	1
		. Assembly, Upper Take Label Sensor (Green/Yellow Wires)	
20	07435§	. . Screw, 6-32 x 0.37	2
21	30265	. Pulley, Idler	1
22	30207	. Shaft, Idler	1
23	11301	Wrench, Long Hex, 7/64"	1
N/S	01688-140§§	Kit, Spindle Felt Pads for all Spindles	

*Only available in quantities of 25 as Part Number HW30392-006

**Only available in quantities of 25 as Part Number HW40193

†Only available in quantities of 50 as Part Number HW30392-004

††Only available in quantities of 25 as Part Number HW30118

‡Only available in quantities of 25 as Part Number HW30114

‡‡Only available in quantities of 25 as Part Number HW30115

§Only available in quantities of 100 as Part Number HW07435

§§Contains:	1	01889	2 oz. Bottle of Silicone Oil
	2	30041-1	Washer, Felt 11/4" x 19/32" x 3/32"
	2	30041-2	Washer, Felt 21/4" x 19/32" x 3/32"
	2	30041-3	Washer, Felt 7/8" x 5/8" x 3/32"
	1	30041-4	Washer, Felt 29/32" x 1/2" x 3/32"
	1	30041-5	Washer, Felt 7/8" x 13/32" x 3/32"
	1	30041-6	Washer, Felt 13/16" x 13/32" x 3/32"
	2	30041-7	Washer, Felt 15/8" x 17/32" x 0.093"
	1	30042	Spring, Torsion 0.739 x 0.805

Bold = Part available for purchase*Light italic = Part not available for purchase, listed and shown for reference only*

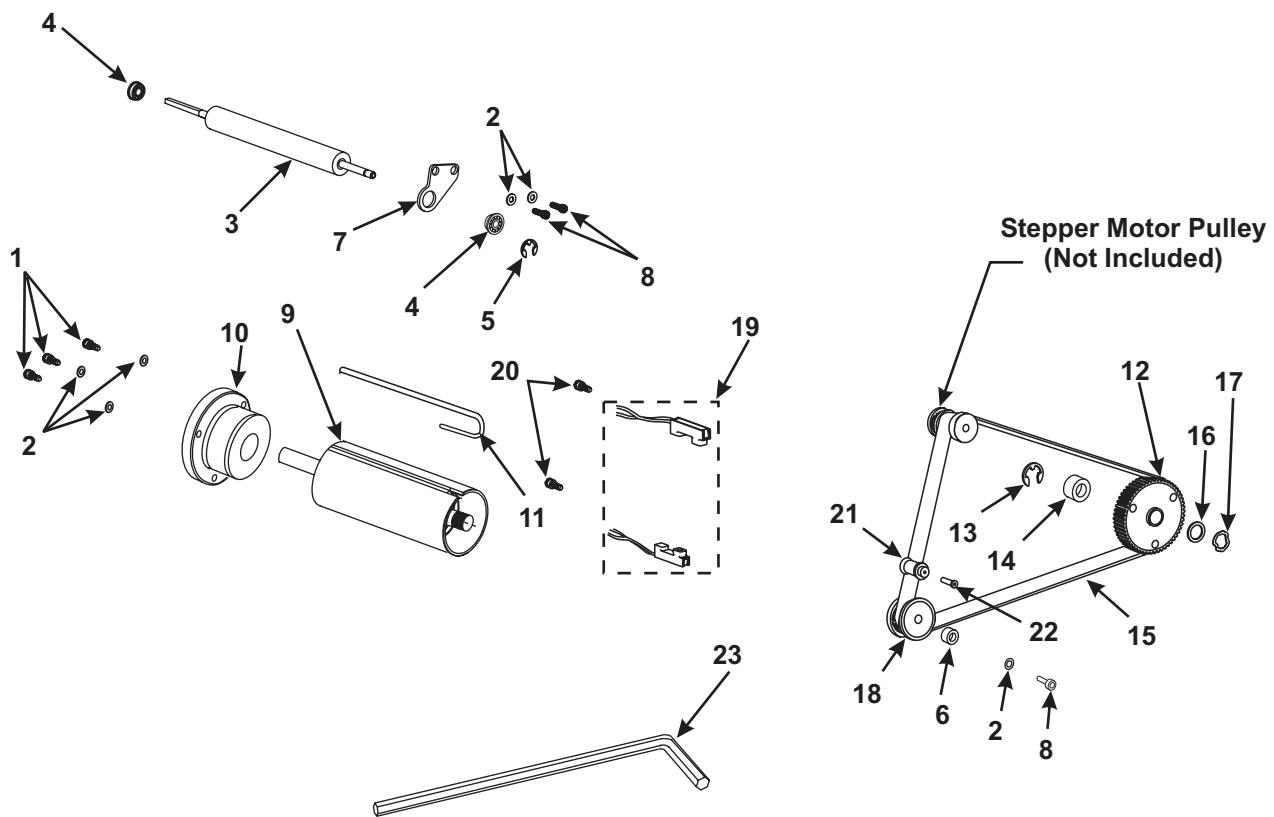


Figure 5-14. Backing Rewind Assembly

Table 5-15. Media Rewind Option

Item	Part Number	Description	Qty
Ref	33181	Kit, Option Media Rewind	
1	30393-006*	. Screw, 8-32, Socket Head Cap	3
2	40193**	. Washer, Flat 0.406 x 0.172 x 0.048	6
3	32011	. Lower Platen Roller (See Pages 5-12 & 5-13 for Platen Roller Kits)	1
4	22004-1	. Spacer	1
5	49688	. Bearing, Flanged	2
6	02252	. C-Ring	1
7	40019	. Plate, Roller Adjust	1
8	30392-004†	. Screw, 6-32 x 0.18	3
9	40055RM	. Media Rewind Spindle	1
10	47062-2	. . Hook, Rewind	1
11	30334-7	. . Assembly, Bearing Housing	1
12	46609-4M	. Assembly, Lower Take Label Sensor (Black/Red Wires)	1
		. Assembly, Upper Take Label Sensor (Green/Yellow Wires)	
13	07435††	. Screw, 6-32 x 0.37	2
14	31336	. RTU/MTU Pulley. (See Pages 5-18 & 5-19 for Spindle Kits)	1
15	30118‡	. E-Ring	1
16	46909	. Spacer	1
17	30114‡‡	. Washer, Flat 0.76 x 0.51 x 0.03	1
18	30115§	. Washer, Wave	1
19	45189-2	. Belt, Rewind Drive	1
20	30265	. Pulley, Idler	1
21	30207	. Shaft, Idler	1
22	30257	. Pulley, Rewind (12 Dot/mm)	1
	48018	. Pulley, Rewind (8 Dot/mm)	1
23	40383RM	. Assembly, Std. Rewind Plate	1
24	11301	. Wrench, Long Hex Allen, 7/64"	1
N/S	30041-7§§	. Washer, Felt 1-5/8 x 1-7/32 x 0.093 (Inside Spindle Assembly)	2
N/S	01688-140¶	Kit, Spindle Felt Pads for all Spindles	
N/S - Not Shown			

*Only available in quantities of 25 as Part Number HW30393-006

**Only available in quantities of 25 as Part Number HW40193

†Only available in quantities of 50 as Part Number HW30392-004

††Only available in quantities of 100 as Part Number HW07435

‡Only available in quantities of 25 as Part Number HW30118

‡‡Only available in quantities of 25 as Part Number HW30114

§Only available in quantities of 25 as Part Number HW30115

§§Only available in quantities of 50 as Part Number HW30041-7

¶Contains:	1	01889	2 oz. Bottle of Silicone Oil
	2	30041-1	Washer, Felt 11/4" x 19/32" x 3/32"
	2	30041-2	Washer, Felt 21/4" x 19/32" x 3/32"
	2	30041-3	Washer, Felt 7/8" x 5/8" x 3/32"
	1	30041-4	Washer, Felt 29/32" x 1/2" x 3/32"
	1	30041-5	Washer, Felt 7/8" x 13/32" x 3/32"
	1	30041-6	Washer, Felt 13/16" x 13/32" x 3/32"
	2	30041-7	Washer, Felt 15/8" x 17/32" x 0.093"
	1	30042	Spring, Torsion 0.739 x 0.805

Bold = Part available for purchase

Light italic = Part not available for purchase, listed and shown for reference only

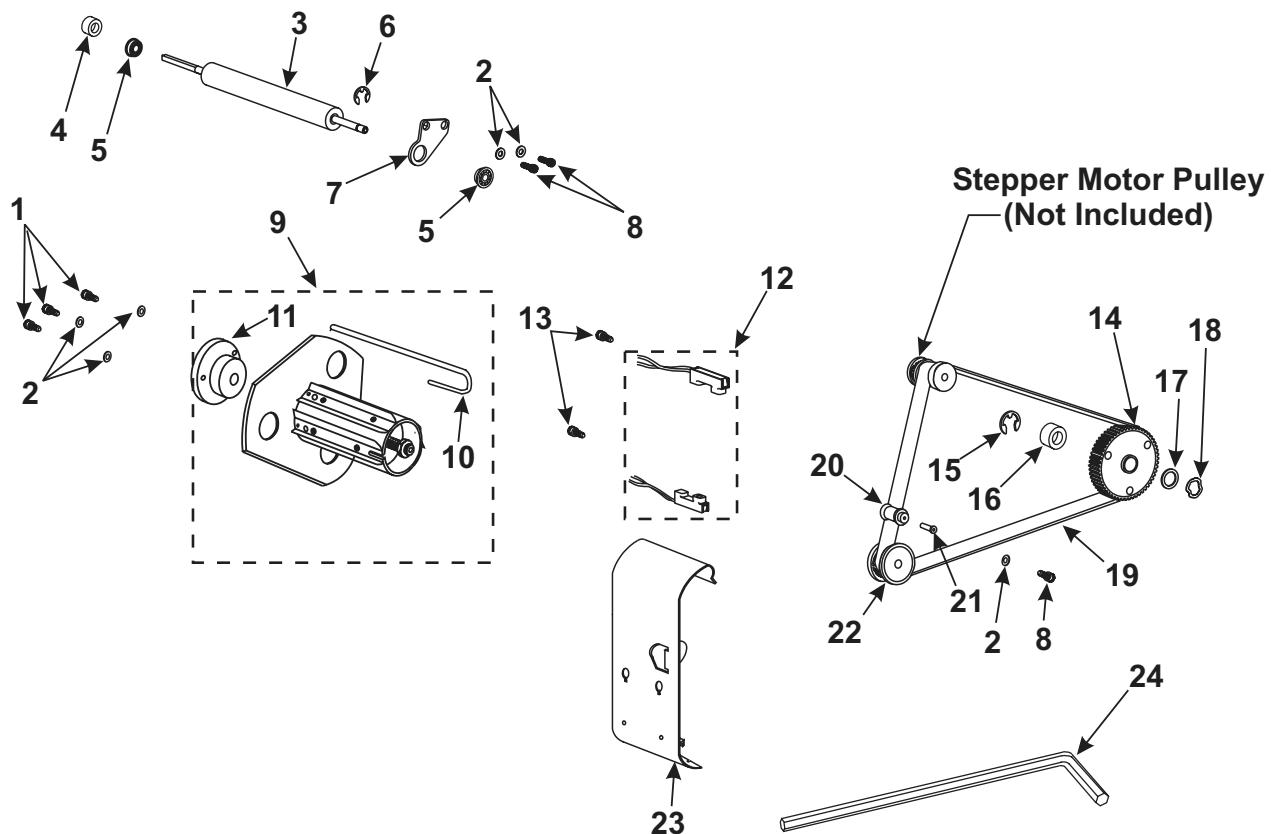


Figure 5-15. Media Rewind Option

Table 5-16. Cutter Option

Item	Part Number	Description	Qty
1	02133*	E-Ring, 0.188, Black	4
2	30378M	Link, Main	1
3	30199	. Bearing, 0.375 x 0.189 x 0.125	3
4	Q10019	E-Ring, 0.250, Black	1
5	30210	Washer, Flat 0.564 x 0.384 x 0.060	2
6	30208**	Washer	1
7	30217-1	Link, Pin	1
8	30379M	Link, Slotted	1
9	30133	. Bearing, Ball 0.375 x 0.187 x 0.125	1
10	30198	Bearing, 0.500 x 0.252 x 0.250	1
11	30380M	Kit, Maintenance Lower Drive Arm	1
12	30219	Flag, Sensor	1
13	01155†	Washer, Lock #6	1
14	30236	Screw, 4-40 x 0.25	3
15	30216	Post, Pivot 0.25-20	1
16	01822	Nut, 4-40	3
17	31313	Clamp, Wire, Cutter	1
18	46618M	Assembly, Cutter Sensor	1
19	30394-005	Screw, 10-32 x 0.312	2
20	30405-006	Screw, 1/4-20 x 0.38	1
21	46224	Grommet, Rubber 0.25 x 0.18 x 0.25	1
22	08449	Tie-wrap	1
23	31374M	Kit, Maintenance Motor Cutter	1
24	10421	Screw, M4 x 0.7 x 5	4
25	30816	Bracket, Lower Cutter	1
26	40193††	Washer, Felt 0.406 x 0.172 x 0.048	2
27	30392-004‡	Screw, 6-32 x 0.25	6
28	40819	Bracket, Cutter Support	1
29	30196-150	Module, Cutter	1
30	46280M	Kit, Maintenance Arm Drive Upper	1
31	30391-003‡‡	Screw, 4-40 x 0.19	4
32	49730M	Kit, Maintenance PCB Cutter Control	1
33	49604-010	Cable, Power Distribution	1
34	49600-012	Cable, SP Comm	1
35	40320	Brush, Anti-Static	1
36	40181	Guide, Upper (6 & 8 Dot only)	1
37	Q10011	Screw, M4 x 0.7	2
38	46807	Bracket, Upper Cutter	1
39	48459	Kit, Cutter Catch Tray	1

*Only available in quantities of 50 as Part Number HW02133

**Only available in quantities of 25 as Part Number HW30208

†Only available in quantities of 100 as Part Number HW01155

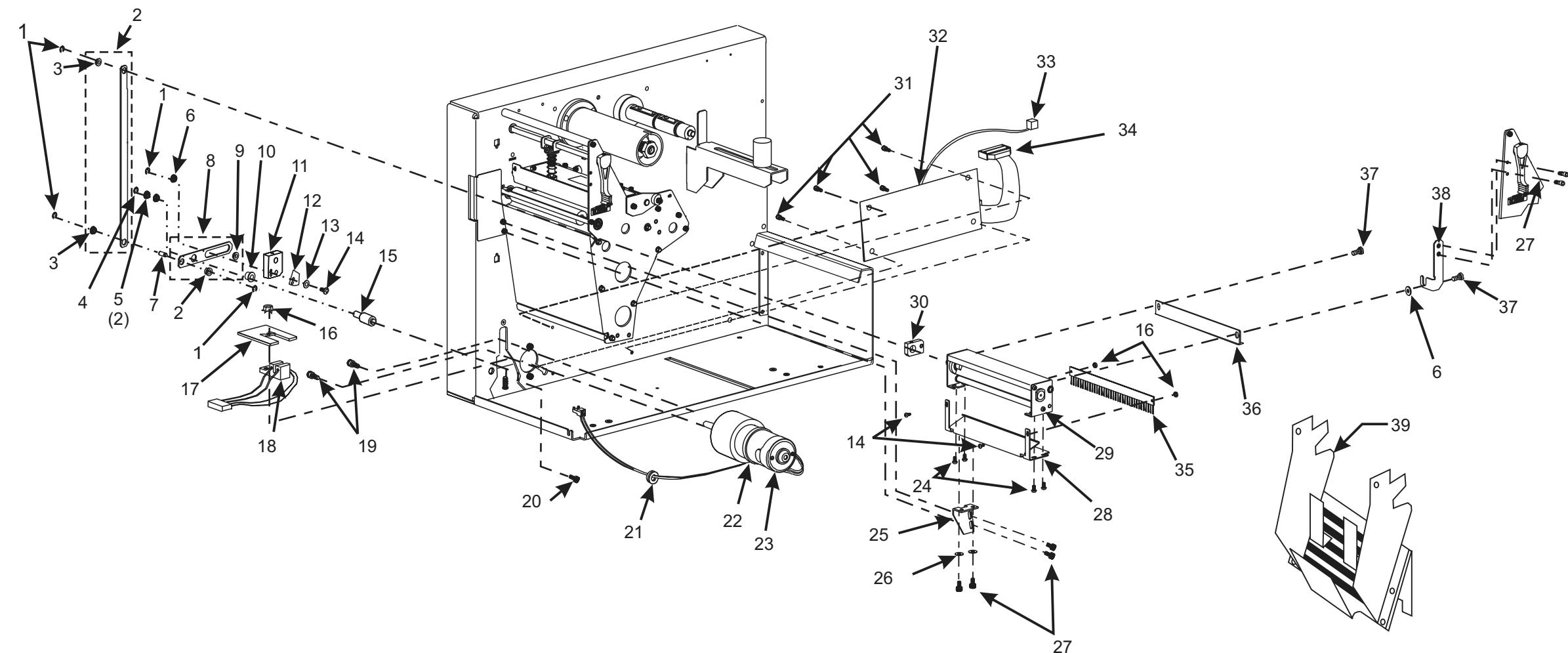
††Only available in quantities of 25 as Part Number HW40193

‡Only available in quantities of 50 as Part Number HW30392-004

‡‡Only available in quantities of 25 as Part Number HW30091-003

Bold = Part available for purchase

Light italic = Part not available for purchase, listed and shown for reference only



NOTE

1. Position Brush so that Approximately 1/8" of the Brush's Bristles Rub Against Each Moving Label and the Brush's Bristles are Parallel to the Label Edge.

Figure 5-16. Cutter Option (View 1)

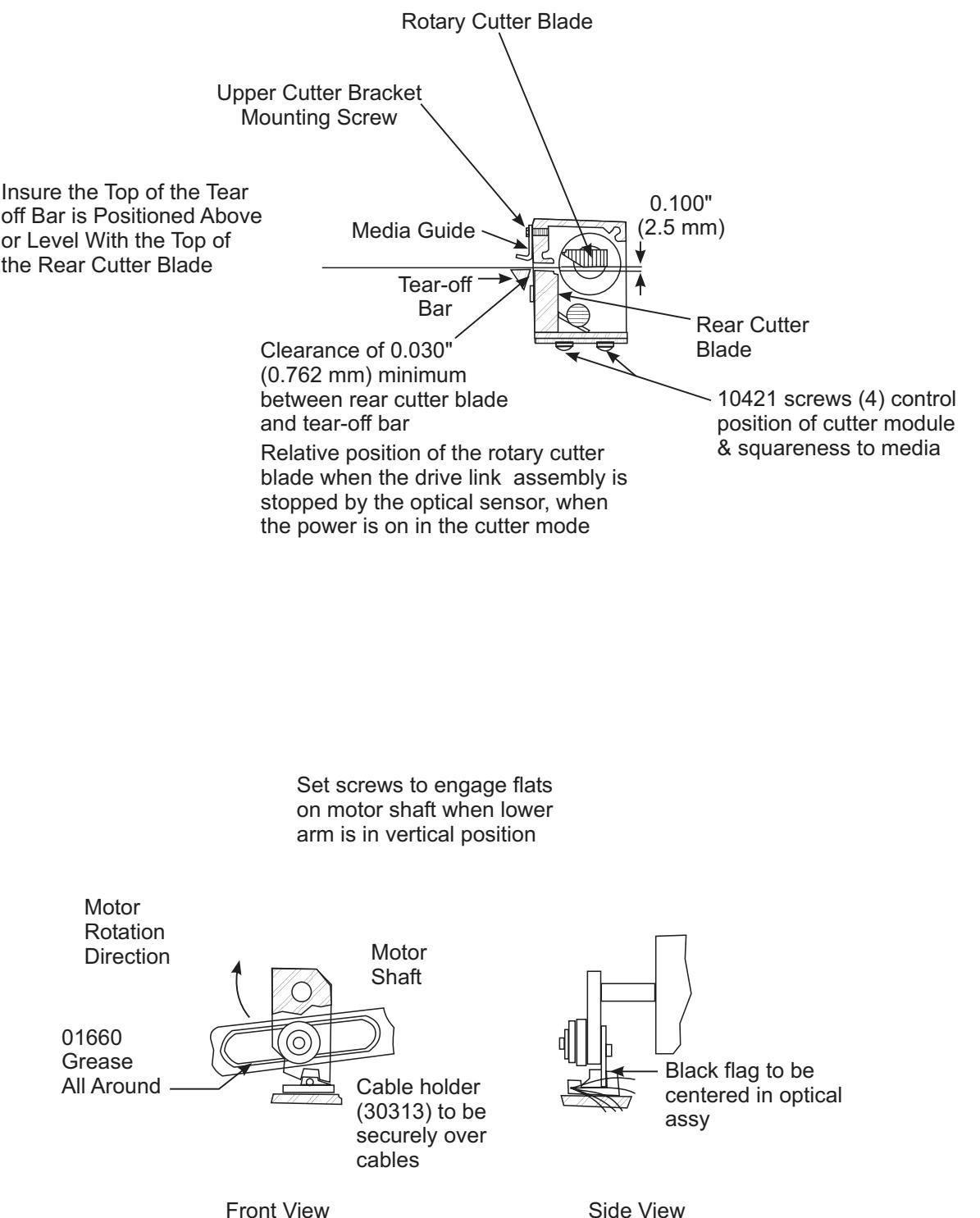


Figure 5-17. Cutter Option (View 2)

Table 5-17. Communication Options

Item	Part Number	Description	Qty
1	48924	Kit, Field Upgrade IBM Twinax	1
2	<i>48752</i>	. Assembly, PCB IBM Twinax	1
3	30757	. AP Cable, Ribbon 40 Option Signal	1
4	30753	. Assembly, Cable IBM Twinax	1
5	48925	Kit, Field Upgrade IBM Coax	1
6	<i>48761</i>	. Assembly, PCB IBM Coax	1
7	30757	. AP Cable, Ribbon 40 Option Signal	1
8	48753	. Cable, Coax Ext. IBM	1
9	46692	Kit, Upgrade ZebraNet II External	1
10	46689	Kit, Upgrade ZebraNet II Internal	1
11	—	. PA Cable, Internal	1
12	46709	. PA Cable Tape ZebraNet II	1
13	47210	. Grommet, Strip 2-1/8	1
14	<i>46686</i>	. PA 10 Base T Web Internal	1

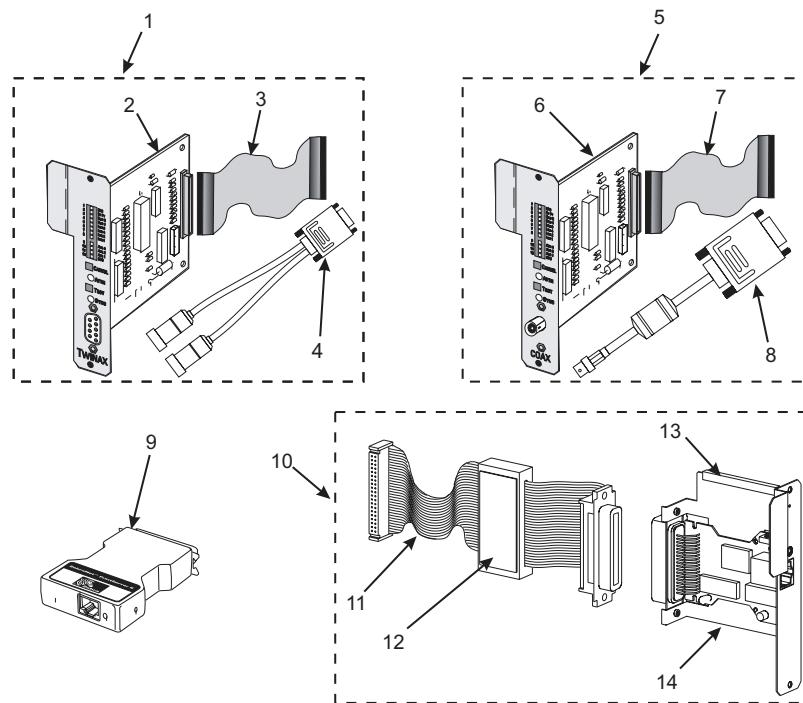
Bold = Part available for purchase*Light italic* = Part not available for purchase, listed and shown for reference only

Figure 5-18. Communication Options

Table 5-18. Fanfold Bin Option

Item	Part Number	Description	Qty
1	40457	Kit, Fanfold Upgrade	1
2	30278	. Bracket, End, Fanfold	1
3	30277	. Bracket, Side, Fanfold	1
4	40276	. Bin, Fanfold	1
5	<i>30392-006*</i>	. Screw, 6-32 x 0.37	3
6	30956	. Washer, Flat 0.207 x 0.146 x 0.030	2
7	01130	. Nut, 6-32	3

*Only available in quantities of 25 as Part Number HW30392-006

Bold = Part available for purchase

Light italic = Part not available for purchase, listed and shown for reference only

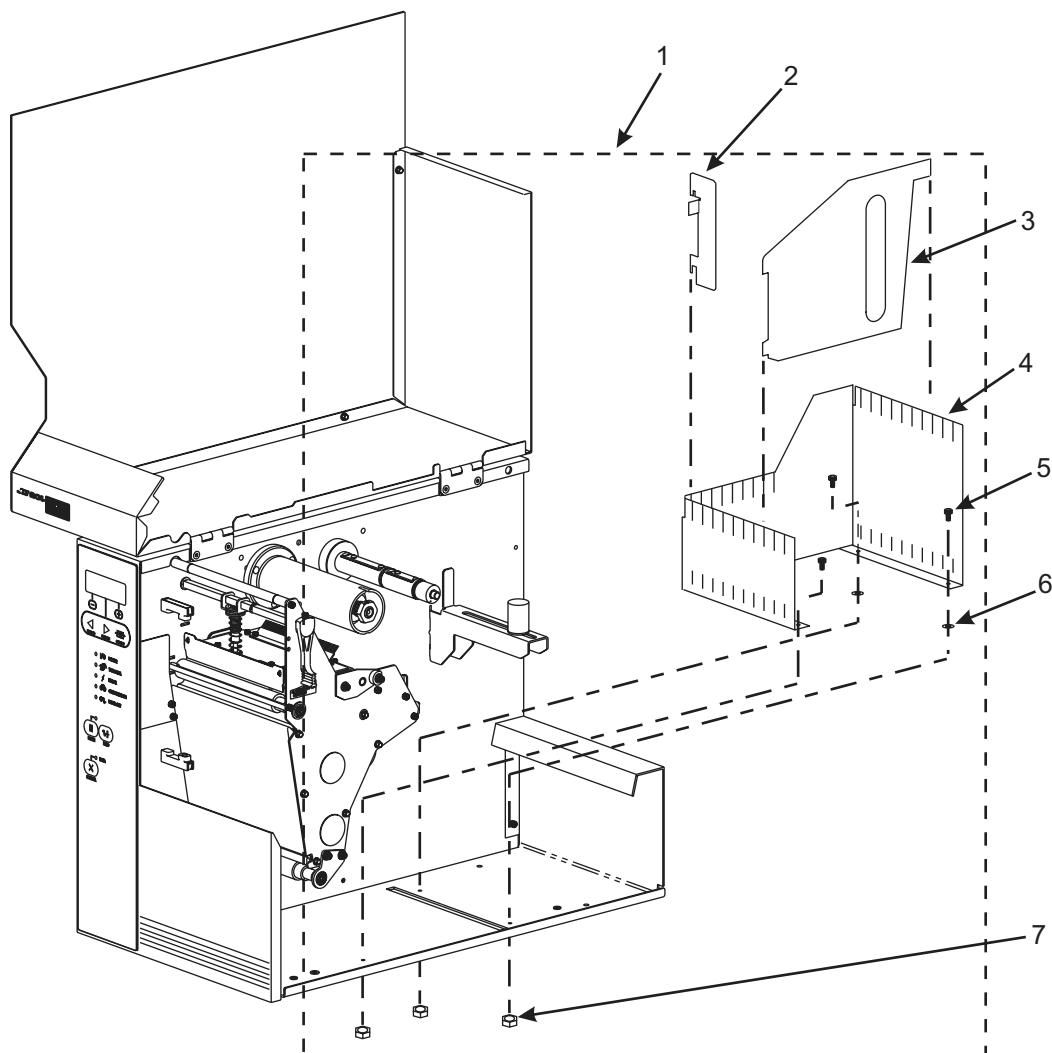


Figure 5-19. Fanfold Bin Option

SECTION 6

OPTION KITS

BACKING REWIND OPTION KIT (LINER REWIND)

This kit (part # 33180) includes the parts necessary to install the backing rewind option into the 105SL. The kit includes all the parts listed in Table 6-1 and shown in Figure 6-1.

Table 6-1. Backing Rewind Option Kit Inventory

✓	Item #	Qty	Part Number	Description
	1	3	30393-006*	Screw, 8-32 x 0.37, Socket Head Cap
	2	6	40193**	Washer, Flat 0.406 x 0.172 x 0.048
	3	2	49688	Bearing, Flanged (Part of 32211M)
	4	1	32011M	Kit, Maintenance, Platen Roller
	5	1	45035	Kit, Backing Rewind Spindle
	6	1	40490-2	Hook, Rewind
	7	1	40019	Bracket, Platen Support
	8	5	30392-004***	Screw, 6-32, Socket Head Cap
	9	1	02252	C-Ring
	10	1	30334-7	Assembly, Bearing Housing (Part of 45055)
	11	1	31336M	Kit, Maintenance RTU/MTU Pulley
	12	1	30118†	E-Ring 0.500 x 0.042
	13	1	45189-2	Belt, Rewind Drive
	14	1	30114††	Washer, Flat 0.76 x 0.51 x 0.03
	15	1	30115†††	Washer, Wave 0.740 x 0.520 x 0.080
	16	1	30257	Pulley, Rewind (12 Dot/mm, 300 dpi)
		1	48018M	Pulley Rewind (8 Dot/mm 203 dpi))
	17	1	46609-4M	Assembly, Lower Take Label Sensor (Black/Red Wires)
		1		Assembly Upper Take Label Sensor (Green/Yellow Wires)
	18	6	07435‡	Screw, 6-32 x 0.37
	19	1	30265	Pulley, Idler
	20	1	22004-1	Spacer
	21	1	30207	Shaft, Idler
	22	1	46909	Spacer 0.750 x 0.520 x 0.300 (Part of 31336M)
	23	1	11301	Wrench, Long Allen, 7/64"
N/S	1		01660	Grease (Lubriplate GR-132)

(N/A) – Not Available as a Separate Service Item N/S – Not Shown

* Only available in quantities of 25 as Part Number HW30393-006

** Only available in quantities of 25 as Part Number HW40193

*** Only available in quantities of 50 as Part Number HW30392-004

† Only available in quantities of 25 as Part Number HW30118

†† Only available in quantities of 25 as Part Number HW30114

††† Only available in quantities of 25 as Part Number HW30115

‡ Only available in quantities of 100 as Part Number HW07435

Bold = Part available for purchase

Light italic = Part not available for purchase, listed and shown for reference only

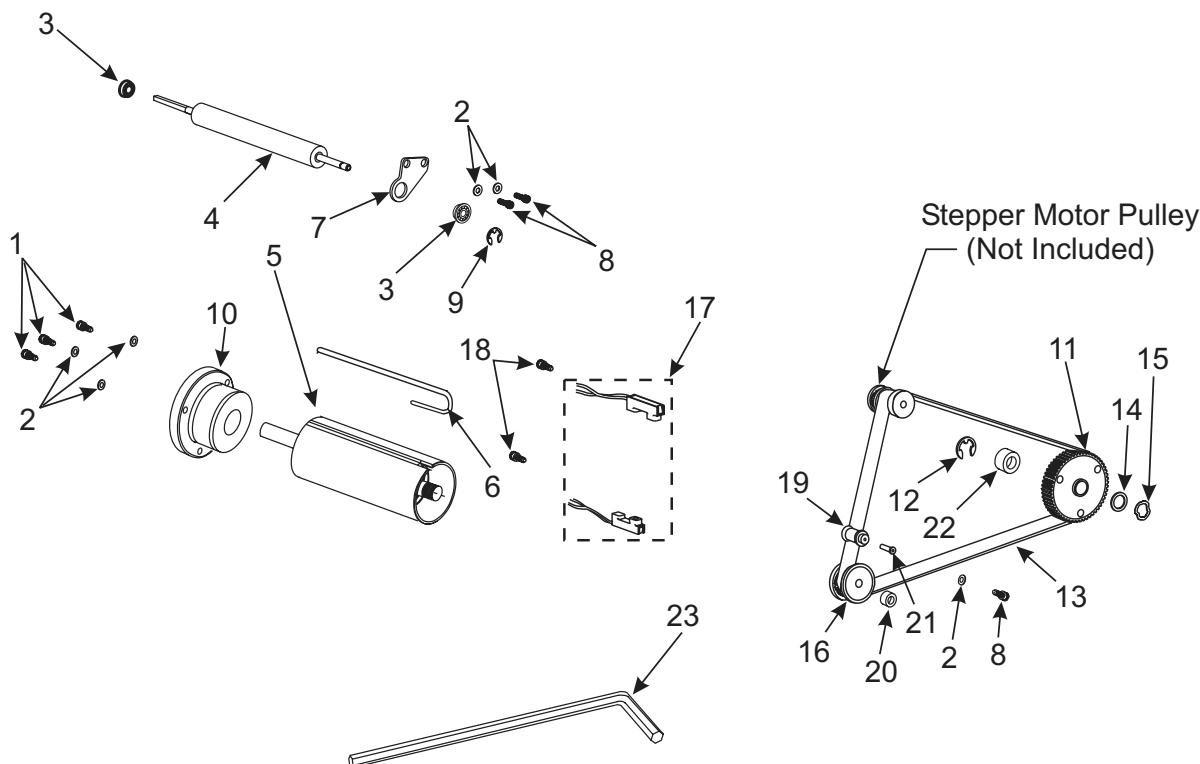


Figure 6-1. Backing Rewind Option Kit

Installation

The printer must be partially disassembled in order to install the various parts provided in this kit. Use the following procedure to install the kit.

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (**O**) position and disconnect the AC power cord. Disconnect the data cables.
2. Open the media cover. Open the printhead and remove the media and ribbon. Close the printhead.
3. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.

NOTE: *The cables to the power supply do not need to be removed.*

4. For printers with configuration number 10500-0XXX-XXXX or 10500-1XXX-XXXX, refer to RRP No. 3 on page 4-13 and remove the DC power supply.
or
For printers with configuration number 10500-2XXX-XXXX or 10500-3XXX-XXXX, refer to RRP No. 5 on page 4-16 and remove the AC/DC power supply.
5. Refer to Figure 6-2. Remove and retain the plastic plug in the lower access hole near the bottom of the side plate.
6. Place a flat washer (2) onto one of the screws (8). Using the Allen wrench provided with this kit, place this mounting screw through the lower access hole in the side plate and through the idler pulley mounting slot in the printer main frame. On the electronics side of the printer main frame, attach the idler shaft (21) to the mounting screw.

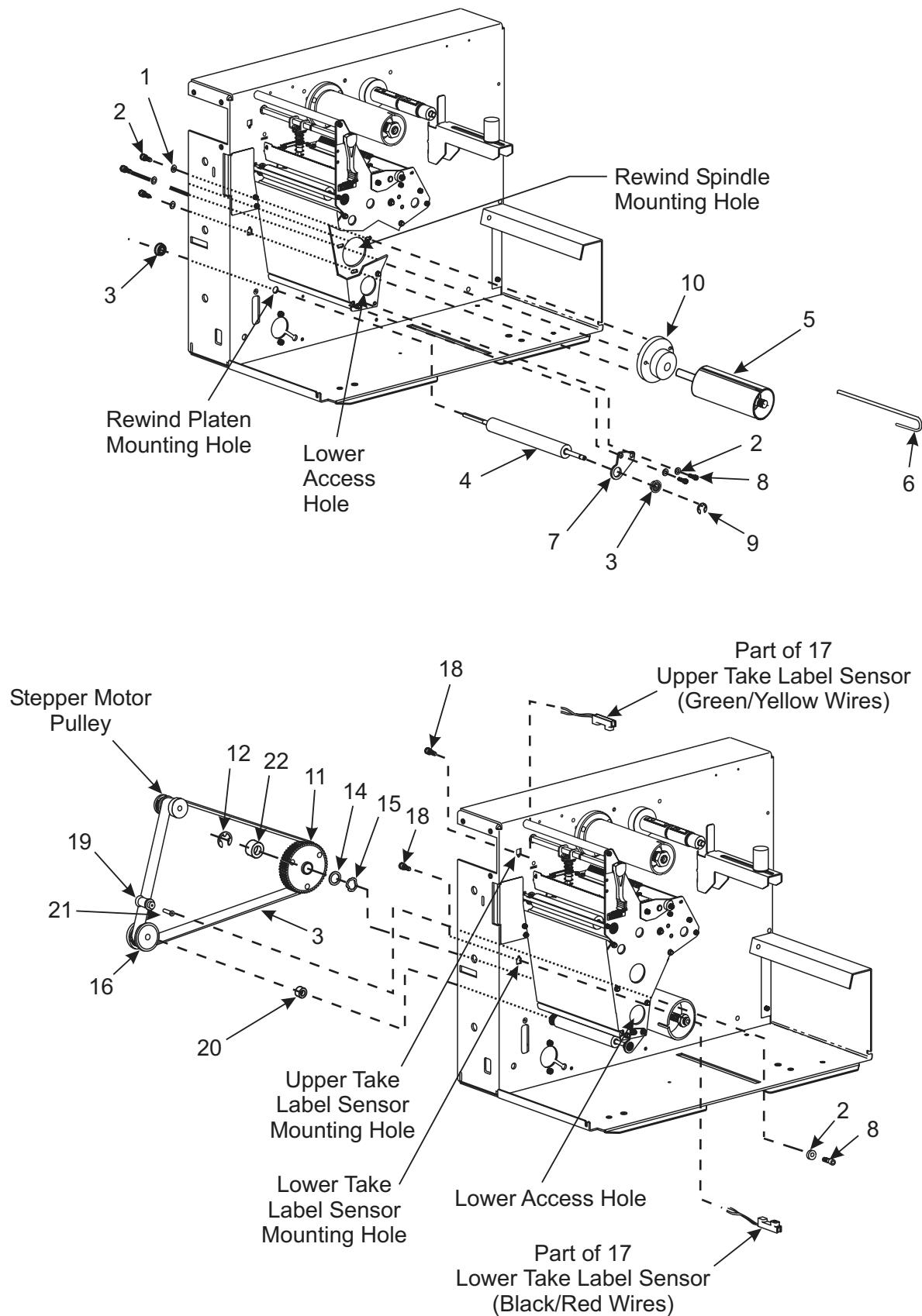


Figure 6-2. Liner Rewind Assembly Installation

7. Position the idler shaft in the middle of the mounting slot and tighten the mounting screw.

NOTE: *Avoid getting grease anywhere except on the idler shaft.*

8. With a toothpick or small screwdriver, apply a very small amount of grease (provided in kit) to the idler shaft.
9. Orient the idler pulley (19) as shown, and slide it onto the idler shaft.
10. Remove and discard the plastic plug from the rewind spindle mounting hole near the bottom of the side plate.
11. Slide the bearing housing assembly (10) off the shaft of the backing rewind spindle assembly (5).
12. Install the bearing housing assembly on the printer main frame using three screws (1) and three flat washers (2). Do not tighten the screws at this time.
13. Insert the shaft of the rewind spindle (5) through the bearing housing assembly.
14. Place the wave washer (15), flat washer (14) and pulley (11) over the rewind spindle shaft.

WARNING:



WEAR PROTECTIVE EYE WEAR WHEN REMOVING E-RINGS, C-CLIPS, SNAP RINGS AND SPRINGS. ALL OF THESE ARE UNDER TENSION AND COULD FLY OFF WHILE BEING REMOVED.

15. Slide the spacer (22) onto the rewind spindle shaft. Press the E-ring (13) into the groove in the rewind spindle shaft.
16. Attach the platen support bracket (7) to the side plate with two flat washers (2) and two screws (8). Do not tighten the screws at this time.
17. Remove and discard the plastic plug from the rewind platen mounting hole near the bottom of the side plate.
18. Insert the long end of the platen roller (4) through the platen mounting hole.
19. Place one flange bearing (3) over the left end of the platen roller, flange out. Press the bearing into the mounting hole of the main frame.
20. Place the opposite end of the platen roller through the platen support bracket.
21. Place the remaining flange bearing (3) over the right end of the platen roller with the flange of the bearing facing the outside of the platen support bracket. Press the bearing into the mounting hole in the platen support bracket and secure with the C-ring (9).
22. Tighten the mounting screws that secure the platen support bracket to the side plate. The bracket may need adjustment later.
23. Slide spacer (20) onto the platen roller.

NOTE: *Use part # 30257 for 300-dpi printers or part # 48018M for 203-dpi printers.*

24. Slide rewind platen pulley (16) onto the platen roller and align the two set screws with the flat surfaces of the platen roller.

25. Leave approximately a 0.020 in. (0.5 mm) gap between the C-ring and platen support bracket. Tighten the two pulley set screws.
26. Remove the plastic plugs from the upper and lower take-label sensor mounting holes.

NOTE: *The upper take-label sensor has green/yellow wires.*

27. Refer to Figure 6-3. Insert the upper take label sensor connector and cable through the upper hole in the main frame.

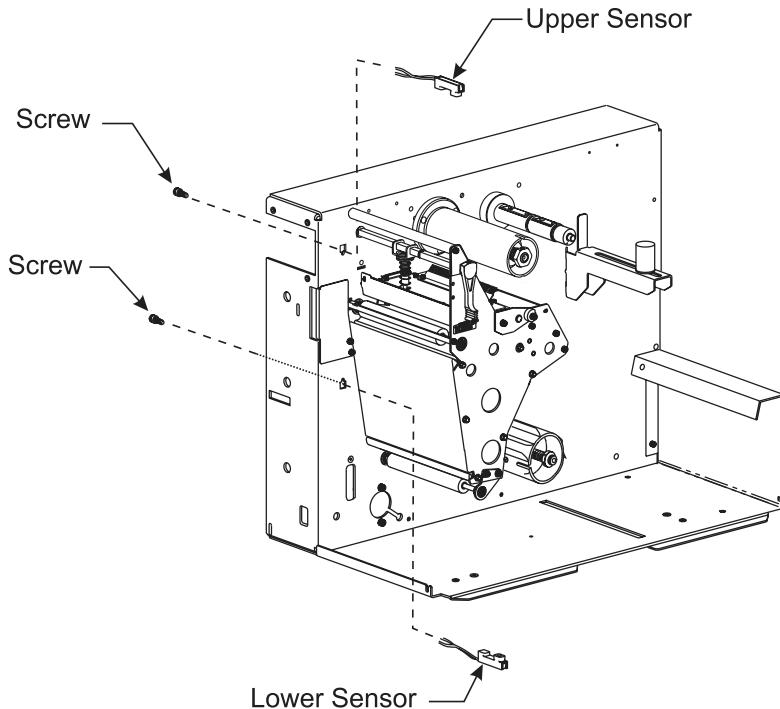


Figure 6-3. Take-Label Sensors

28. Position the sensor with the window facing down. Secure the sensor to the main frame with one screw.

NOTE: *The lower take-label sensor has black/red wires.*

29. Insert the lower take label sensor connector and cable through the lower hole in the main frame.
30. Position the sensor with the window facing up. Secure the sensor to the main frame with one screw.

NOTE: *Figure 6-4 illustrates 105SL printers with configuration numbers 10500-QXXX-XXXX and 10500-1XXX-XXXX. Figure 6-5 illustrates 105SL printers with configuration numbers 10500-2XXX-XXXX and 10500-3XXX-XXXX.*

31. Refer to Figure 6-4 or Figure 6-5. Route the sensor wires through the cable clamps and bring them to the main logic board. Make sure that the wires do not come in contact with any moving parts.
32. Connect the sensor connectors to the main logic board as shown.

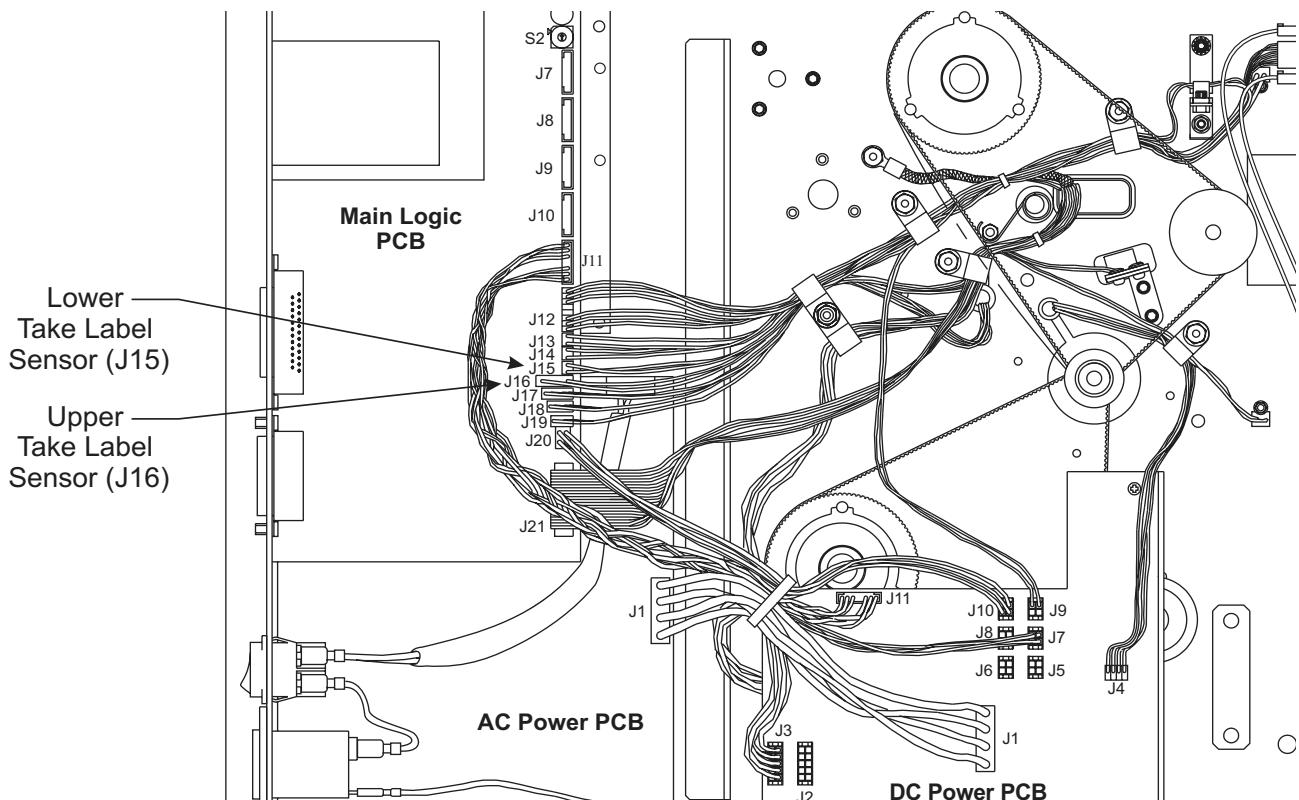


Figure 6-4. Sensor Connector Location (Printer Configurations 10500-0XXX-XXXX and 10500-1XXX-XXXX)

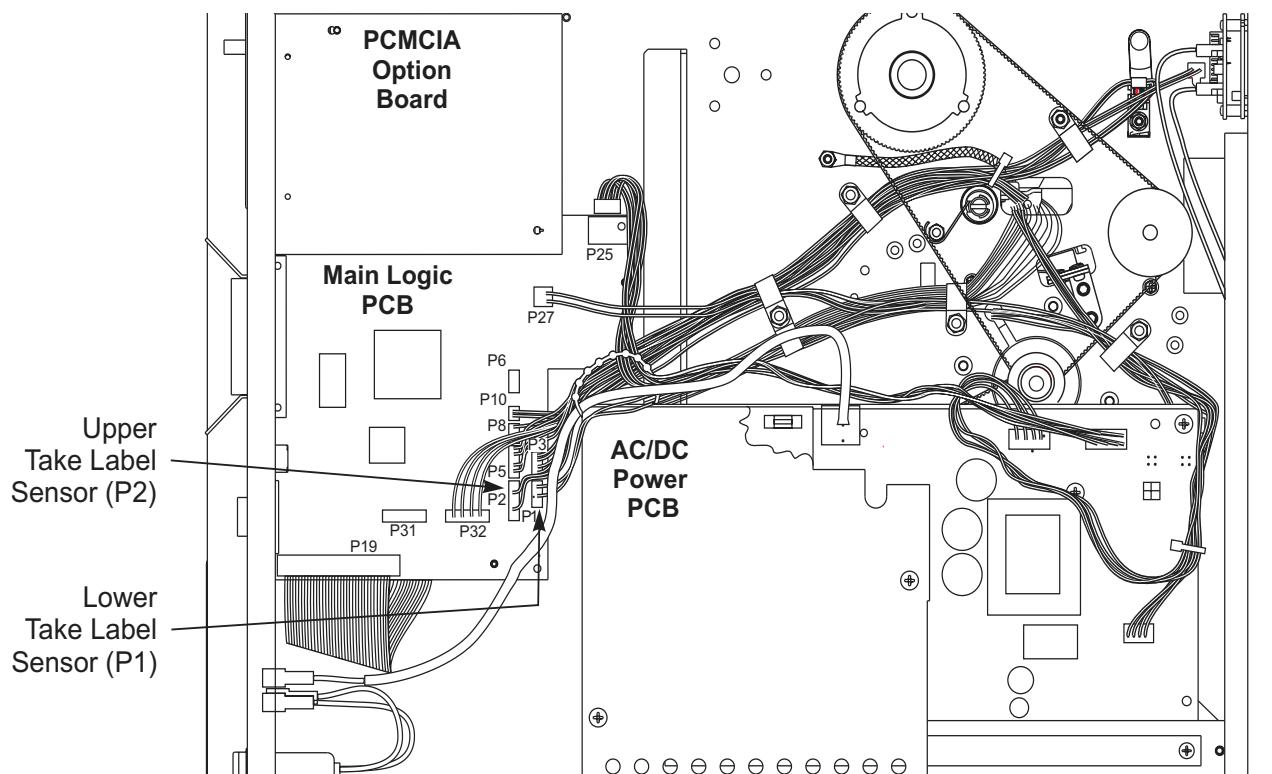


Figure 6-5. Sensor Connector Location (Printer Configurations 10500-2XXX-XXXX and 10500-3XXX-XXXX)

NOTE: *In peel off mode, if the two sensors are not aligned with each other, the take label LED illuminates, and the printer does not operate.*

33. Refer to RRP No. 9 on page 4-23 and remove the main drive belt.
34. Refer to Figure 6-6. Route the rewind drive belt around the inside stepper motor pulley, rewind spindle pulley, rewind platen pulley and the idler pulley.

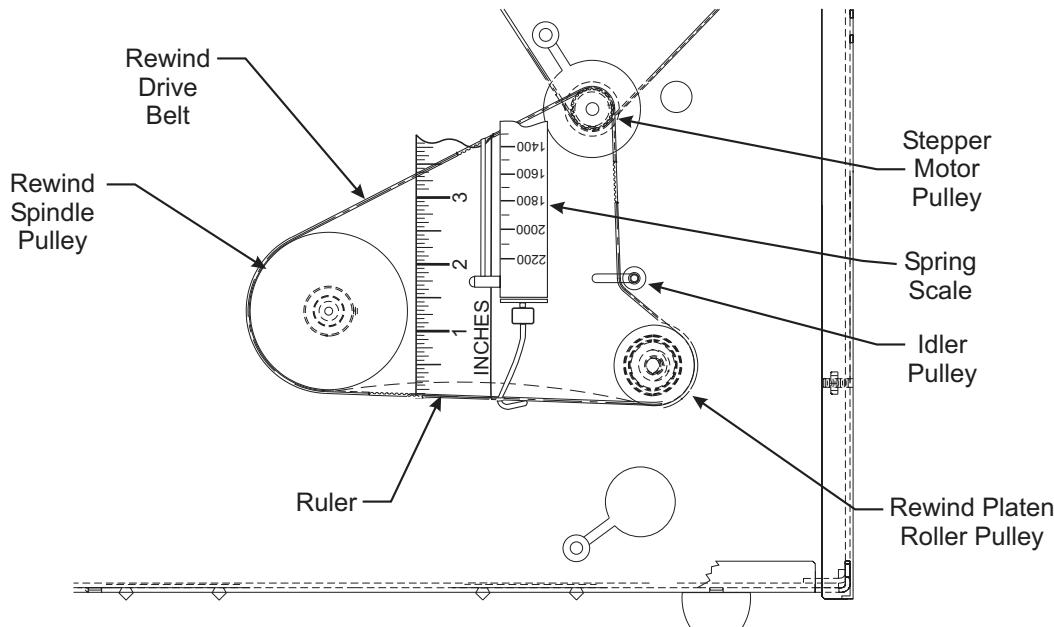


Figure 6-6. Initial Rewind Drive Belt Tensioning

NOTE: *The rewind assembly may reach the limit of travel before the belt is tight.*

35. Slide the rewind assembly toward the rear of the printer until the belt tension is tight. Extend the wrench through the access holes in the backing take-up pulley assembly, and tighten the three screws.
36. Grasp the idler pulley and shaft assembly. Loosen the screw securing the idler pulley, and slide the assembly toward the rear of the printer until belt tension is tight. Tighten the screw to secure the idler pulley.
37. Hook a spring scale at the midpoint of the lower section of the belt and pull up. The belt should deflect 0.25 inches with a tension of 2000 grams (4.5 lbs.). If necessary, readjust the belt tension by changing the position of the idler pulley.
38. When adjustment is completed, reinstall the plastic plug in the lower access hole in the print mechanism side plate.
39. Reinstall the main drive belt. Refer to RRP No. 8 on page 4-22 and check and adjust the tension on the main drive belt.
40. Reinstall the DC power supply or the AC/DC power supply, depending on configuration.
41. Reinstall the electronics cover.
42. Reinstall the media and ribbon.
43. Reconnect the data cables and the power cord.

44. Reconnect the power cable to the power source. Place the power switch in the On (I) position.
45. Perform a PAUSE Key Self Test and observe the tracking of the liner. If the liner does not track properly, proceed to "Adjusting the Roller Adjust Plate."

Reconfigure the Printer for Peel Operation

1. Enter the Configuration mode by pressing the Setup/Exit key at the Printer Ready display.
2. Press Next/Save until you get to Print Mode.
3. Press (+) or (-) key until you select PEEL-OFF.
4. Pressing the Setup/Exit key to leave the Configuration mode. Press the (+) or (-) key to select Permanent. Press Next/Save to accept and make permanent.

Adjusting the Platen Support Bracket

If the liner is tracking off to one side, perform the following procedure to position the roller adjust plate.

1. Refer to Figure 6-7. Loosen, but do not remove, the two screws holding the platen support bracket to the side plate.

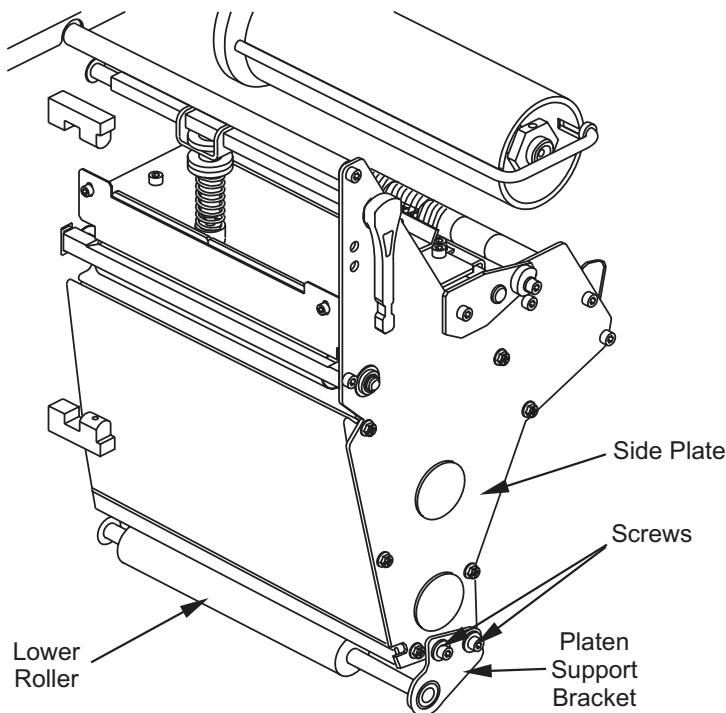


Figure 6-7. Platen Support Bracket Adjustment

NOTE: *Moving the bracket toward the front of the machine moves the label backing material toward the main frame. Moving the bracket toward the rear of the machine moves the label backing away from the main frame.*

2. Adjust the bracket position as required and tighten the screws.

3. Tighten the two screws. Check label backing tracking again.
4. Repeat the procedure until the required results are achieved.

MEDIA REWIND OPTION KIT

This kit (part # 33181) includes the parts necessary to install the media rewind option into the 105SL. The kit includes all the parts listed in Table 6-2 and shown in Figure 6-8.

Table 6-2. Media Rewind Option Kit

✓	Item #	Qty	Part Number	Description
	1	3	30393-006*	Screw, 8-32 x 0.37, Socket Head Cap
	2	6	40193**	Washer, Flat 0.406 x 0.172 x 0.048
	3	2	49688	Bearing, Flanged (Part of 40038M)
	4	1	32011	Platen Roller
	5	1	40055R	Backing Rewind Spindle
	6	1	47062-2	Hook, Rewind
	7	1	40019	Bracket, Platen Support
	8	3	30392-004***	Screw, 6-32 x 0.25
	9	2	02252	C-Ring
	10	1	48383	Assembly, Std. Rewind Plate
	11	1	30334-7	Assembly, Bearing Housing (Part of 40055R)
	12	1	31336M	Kit, Maintenance, RTU/MTU Pulley
	13	1	30118†	E-Ring
	14	1	45189-2	Belt, Rewind Drive
	15	1	30114††	Washer, Flat 0.76 x 0.51 x 0.03
	16	1	30115†††	Washer, Wave
	17	1	30257	Pulley, Rewind (12 Dot/mm, 300 dpi)
			48018M	Pulley, Rewind (8 Dot/mm, 203 dpi)
	18	1	46609-4M	Assembly, Lower Take Label Sensor. (Black/Red Wires)
				Assembly Upper Take Label Sensor. (Green/Yellow Wires)
	19	2	07435‡	Screw, 6-32 x 0.37
	20	1	30265	Pulley, Idler
	21	1	22004-1	Spacer (Part of 40038M)
	22	1	30207	Shaft, Idler
	23	1	46909	Spacer (Part of 31336M)
	24	1	11301	Wrench, Long Allen, 7/64"
	N/S	1	01660	Grease (Lubriplate GR-132)
(N/A) – Not Available as a Separate Service Item N/S – Not Shown				

* Only available in quantities of 25 as Part Number HW30393-006

** Only available in quantities of 25 as Part Number HW40193

*** Only available in quantities of 50 as Part Number HW30392-004

† Only available in quantities of 25 as Part Number HW30118

†† Only available in quantities of 25 as Part Number HW30114

††† Only available in quantities of 25 as Part Number HW30115

‡ Only available in quantities of 100 as Part Number HW07435

Bold = Part available for purchase

Light italic = Part not available for purchase, listed and shown for reference only

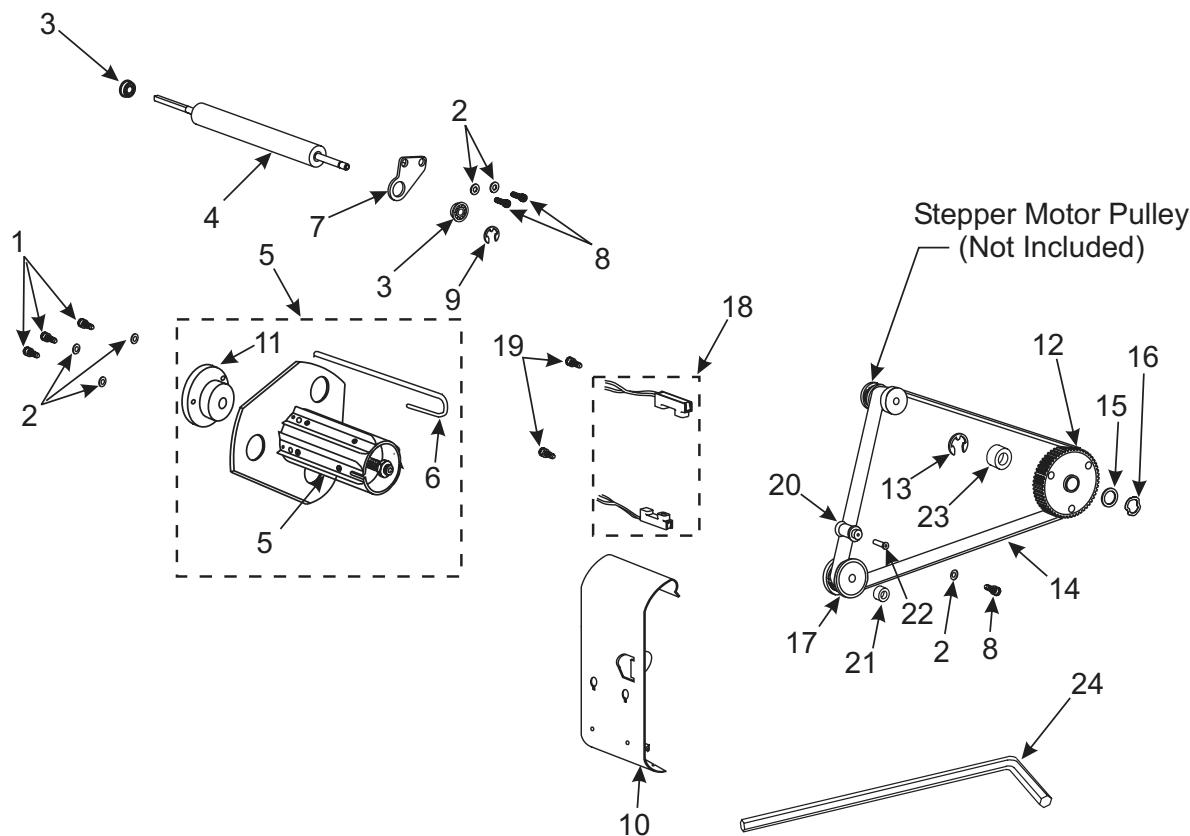


Figure 6-8. Media Rewind Option Kit

Installation

The printer must be partially disassembled in order to install the various parts provided in this kit. Use the following procedure to install the kit.

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (**O**) position and disconnect the AC power cord. Disconnect the data cables.
2. Open the media cover. Open the printhead and remove the media and ribbon. Close the printhead.
3. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.

NOTE: *The cables to the power supply do not need to be removed.*

4. For printers with configuration number 10500-0XXX-XXXX or 10500-1XXX-XXXX, refer to RRP No. 3 on page 4-13 and remove the DC power supply.

or

For printers with configuration number 10500-2XXX-XXXX or 10500-3XXX-XXXX, refer to RRP No. 5 on page 4-16 and remove the AC/DC power supply.

5. Refer to Figure 6-9. Remove and retain the plastic plug in the lower access hole near the bottom of the side plate.

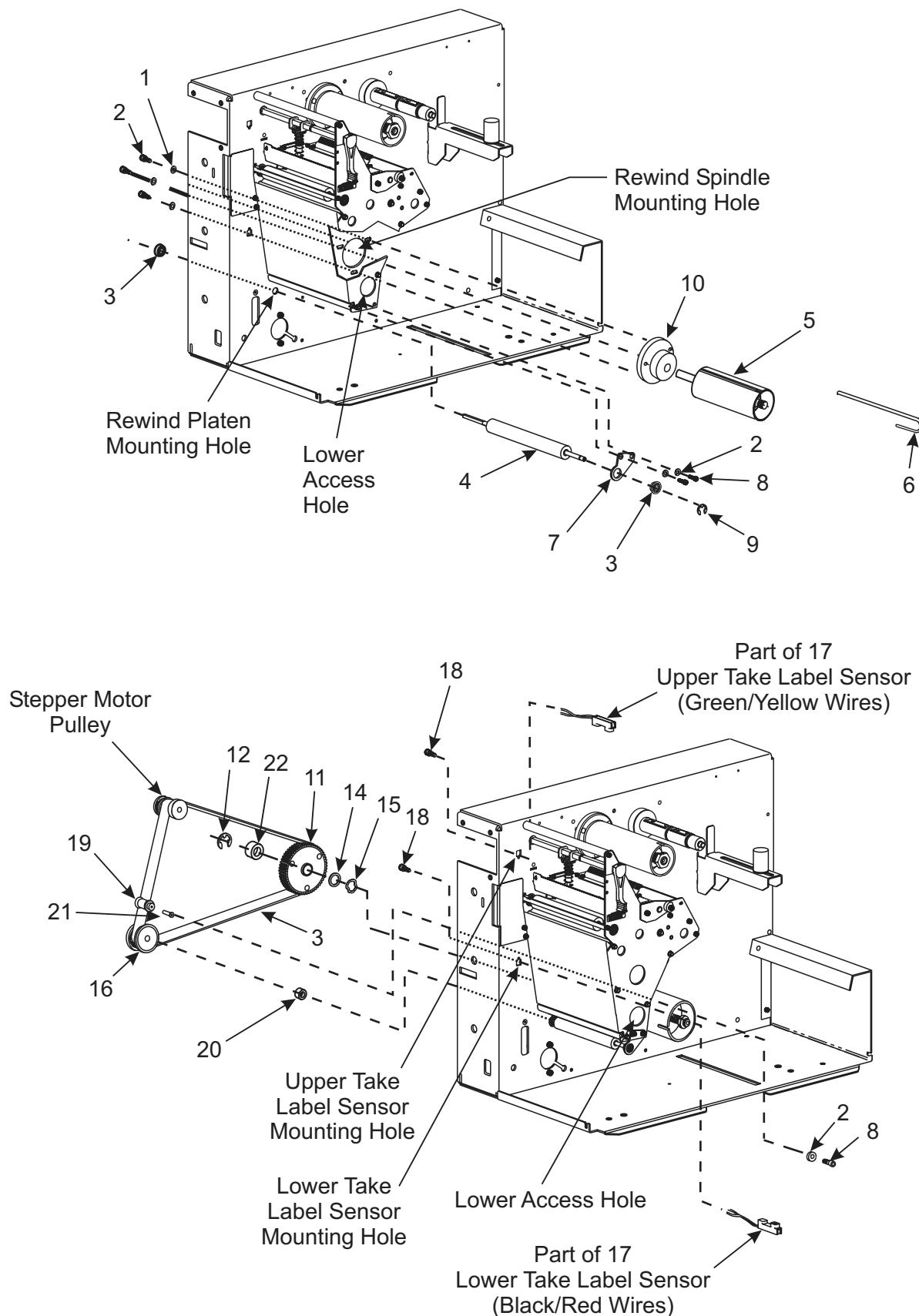


Figure 6-9. Media Rewind Installation

6. Place a flat washer (2) onto one of the screws (8). Using the Allen wrench provided with this kit, place this mounting screw through the lower access hole in the side plate and through the idler pulley mounting slot in the printer main frame. On the electronics side of the printer main frame, attach the idler shaft (22) to the mounting screw.
7. Position the idler shaft in the middle of the mounting slot and tighten the mounting screw.

NOTE: *Avoid getting grease anywhere except on the idler shaft.*

8. With a toothpick or small screwdriver, apply a very small amount of grease (provided in kit) to the idler shaft.
9. Orient the idler pulley (20) as shown, and slide it onto the idler shaft.
10. Remove and discard the plastic plug from the rewind spindle mounting hole near the bottom of the side plate.
11. Slide the bearing housing assembly (11) off the shaft of the backing rewind spindle assembly (5).
12. Install the bearing housing assembly on the printer main frame using three screws (1) and three flat washers (2). Do not tighten the screws at this time.
13. Insert the shaft of the rewind spindle (5) through the bearing housing assembly.
14. Place the wave washer (16), flat washer (15) and pulley (12) over the rewind spindle shaft.

WARNING:



WEAR PROTECTIVE EYE WEAR WHEN REMOVING E-RINGS, C-CLIPS, SNAP RINGS AND SPRINGS. ALL OF THESE ARE UNDER TENSION AND COULD FLY OFF WHILE BEING REMOVED.

15. Slide the spacer (23) onto the rewind spindle shaft. Press the E-ring (13) into the groove in the rewind spindle shaft.
16. Attach the platen support bracket (7) to the side plate with two flat washers (2) and two screws (8). Do not tighten the screws at this time.
17. Remove and discard the plastic plug from the rewind platen mounting hole near the bottom of the side plate.
18. Insert the long end of the platen roller (4) through the platen mounting hole.
19. Place one flange bearing (3) over the left end of the platen roller, flange out. Press the bearing into the mounting hole of the main frame.
20. Place the opposite end of the platen roller through the platen support bracket.
21. Place the remaining flange bearing (3) over the right end of the platen roller with the flange of the bearing facing the outside of the platen support bracket. Press the bearing into the mounting hole in the platen support bracket and secure with the C-ring (9).
22. Tighten the mounting screws that secure the platen support bracket to the side plate. The bracket may need adjustment later.

23. Slide spacer (21) onto the platen roller.

NOTE: *Use part # 30257 for 300-dpi printers or part # 48018M for 203-dpi printers.*

24. Slide rewind platen pulley (17) onto the platen roller and align the two set screws with the flat surfaces of the platen roller.
25. Leave approximately a 0.020" (0.5 mm) gap between the C-ring and platen support bracket. Tighten the two pulley set screws.
26. Refer to Figure 6-10 and engage the top lip and hook plate of the rewind plate into the two mounting slots.

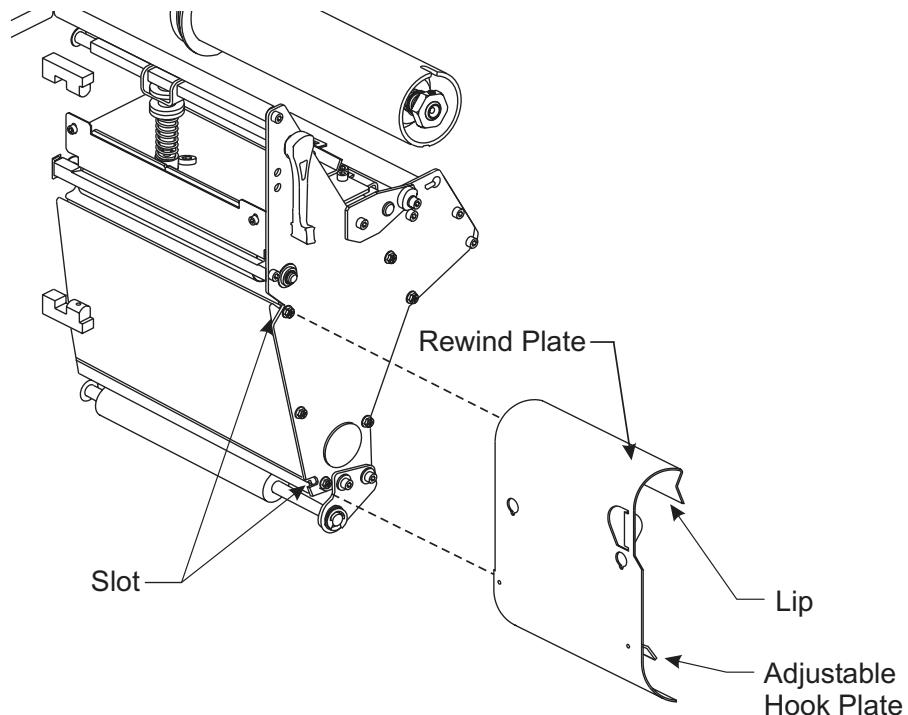


Figure 6-10. Rewind Plate Installation

27. Slide the plate in as far as it can go.
28. Remove the plastic plugs from the upper and lower take-label sensor mounting holes.

NOTE: *The upper take-label sensor has green/yellow wires.*

29. Refer to Figure 6-3. Insert the upper take label sensor connector and cable through the upper hole in the main frame.
30. Position the sensor with the window facing down. Secure the sensor to the main frame with one screw.

NOTE: *The lower take-label sensor has black/red wires.*

31. Insert the lower take label sensor connector and cable through the lower hole in the main frame.
32. Position the sensor with the window facing up. Secure the sensor to the main frame with one screw.

NOTE: *Figure 6-4 illustrates 105SL printers with configuration numbers 10500-0XXX-XXXX and 10500-1XXX-XXXX. Figure 6-5 illustrates 105SL printers with configuration numbers 10500-2XXX-XXXX and 10500-3XXX-XXXX.*

33. Refer to Figure 6-4 or Figure 6-5. Route the sensor wires through the cable clamps and bring them to the main logic board. Make sure that the wires do not come in contact with any moving parts.
34. Connect the sensor connectors to the main logic board as shown.

NOTE: *In peel off mode, if the two sensors are not aligned with each other, the take label LED illuminates, and the printer does not operate.*

35. Refer to RRP No. 9 on page 4-23 and remove the main drive belt.
36. Refer to Figure 6-6. Route the rewind drive belt around the inside stepper motor pulley, rewind spindle pulley, rewind platen pulley and the idler pulley.

NOTE: *The rewind assembly may reach the limit of travel before the belt is tight.*

37. Slide the rewind assembly toward the rear of the printer until the belt tension is tight. Extend the Allen wrench through the access holes in the backing take-up pulley assembly, and tighten the three screws.
38. Grasp the idler pulley and shaft assembly. Loosen the screw securing the idler pulley, and slide the assembly toward the rear of the printer until belt tension is tight. Tighten the screw to secure the idler pulley.
39. Hook a spring scale at the midpoint of the lower section of the belt and pull up. The belt should deflect 0.25 inches with a tension of 2000 grams (4.5 lbs.). If necessary, adjust the belt tension by changing the position of the idler pulley.
40. When adjustment is completed, reinstall the plastic plug in the lower access hole in the print mechanism side plate.
41. Reinstall the main drive belt. Refer to RRP No. 8 on page 4-22 and adjust the tension on the main drive belt.
42. Reinstall the DC power supply or the AC/DC power supply, depending on configuration.
43. Reinstall the electronics cover.
44. Reinstall the media and ribbon.
45. Reconnect the data cables and the power cord.
46. Reconnect the power cord to the power source. Place the power switch in the On (I) position.
47. Perform a PAUSE Key Self Test and observe the tracking of the liner. If the liner does not track properly, proceed to "Adjusting the Roller Adjust Plate."

Reconfigure the Printer for Rewind Operation

1. Enter the Configuration mode by pressing the Setup/Exit key at the Printer Ready display.
2. Press Next/Save until you get to Print Mode.

3. Press (+) or (-) key until you select REWIND.
4. Pressing the Setup/Exit key to leave the Configuration mode. Press the (+) or (-) key to select Permanent. Press Next/Save to accept and make permanent.

Adjusting the Platen Support Bracket

If the liner is tracking off to one side, perform the following procedure to position the roller adjust plate.

1. Refer to Figure 6-7. Loosen, but do not remove, the two screws holding the platen support bracket to the side plate.

NOTE: *Moving the bracket toward the front of the machine moves the media toward the main frame. Moving the bracket toward the rear of the machine moves the media away from the main frame.*

2. Adjust the bracket position as required and tighten the screws.
3. Tighten the two screws. Check label backing tracking again.
4. Repeat the procedure until the required results are achieved.

CUTTER CATCH TRAY OPTION

This kit (part # 48459) includes the parts necessary to install the cutter catch tray option into the 105SL. Use the following procedure to install the cutter catch tray.

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (O) position and disconnect the AC power cord. Disconnect the data cables.
2. Open the media cover.
3. Refer to Figure 6-11. If your printer has no factory options but does have a field installed cutter, use the front cover bracket that comes with the printer.
4. If your machine has a cutter, but you want to print and rewind, disable the cutter and use the rewind plate as shown in Figure 6-10.
5. Hook the catch tray over the front of the printer. Make sure the two slots in the tray engage behind the front cover bracket. Connect the catch tray to the cutter by engaging the two locating tabs.
6. Tighten the two thumb nuts to secure the tray to the printer.

NOTE: *The adjusting nuts on the back of the catch trays allow the trays and guide stops to be adjusted for length and width.*

7. Refer to Figure 6-12. Adjust the length of the assembled upper and lower catch trays for the length of labels being printed and cut.
8. Adjust the catch tray for the width of labels being printed.
9. Close the media cover.
10. Reconnect the power cord to the printer.
11. Reconnect the power cord to the power source. Place the power switch in the On (I) position. The printer is ready to print, cut, and catch labels.

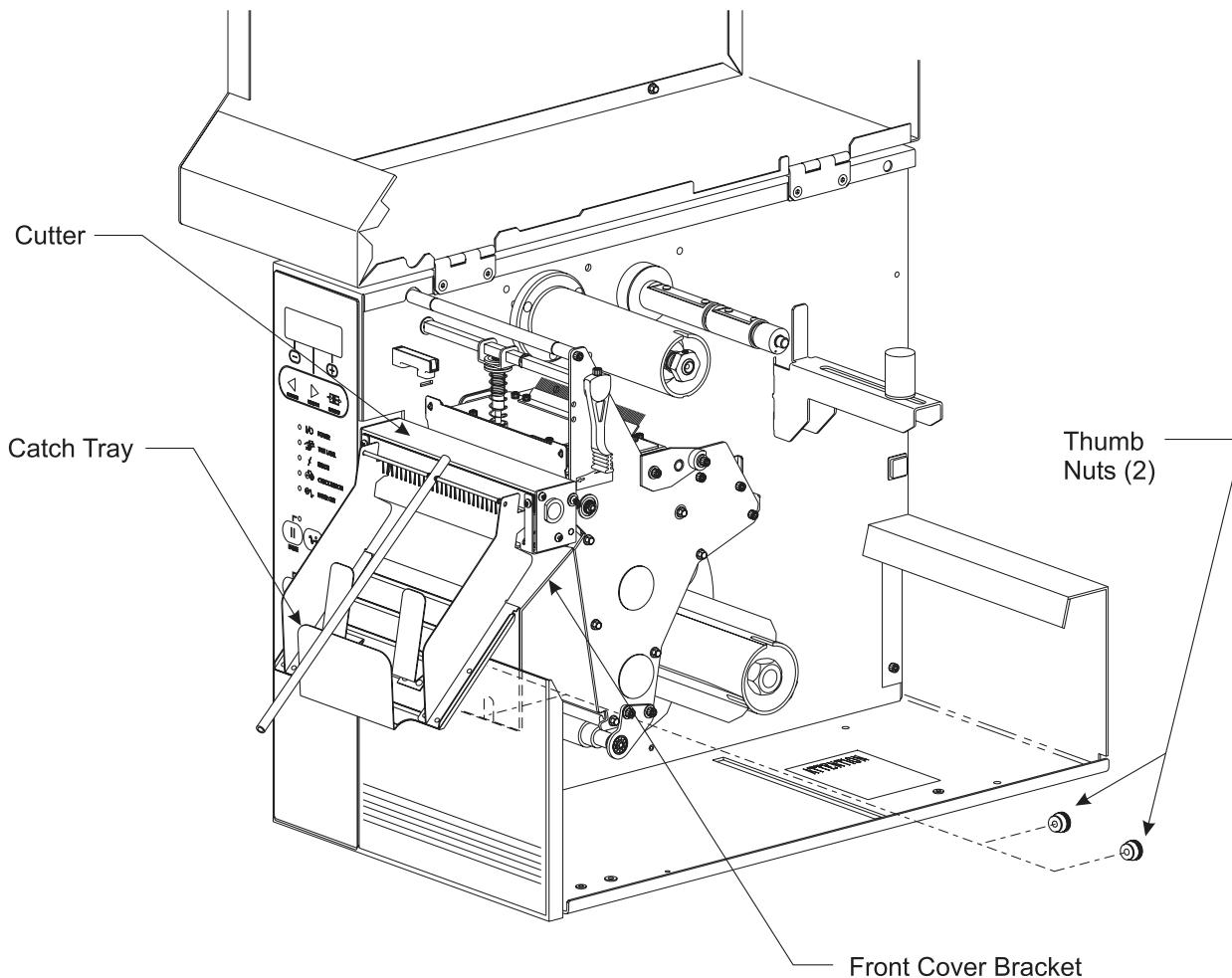


Figure 6-11. Cutter Catch Tray Installation

INTERNAL FANFOLD SUPPLY BIN OPTION

This kit (part # 40457) includes the parts necessary to install the internal fanfold supply bin option into the 105SL. Use the following procedure to install the internal fanfold supply bin.

NOTE: *The Internal Fanfold Supply Bin cannot be installed in a printer that contains a Media Rewind Option or a Peel-off Option.*

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (**O**) position and disconnect the AC power cord. Disconnect the data cables.
2. Open the media cover. Open the printhead and remove media from the machine.
3. Clean all paper dust and scraps from the base of the printer.
4. Attach the fanfold supply bin to the base of the printer with the three supplied screws, flat washers, and nuts, as shown in Figure 6-13.
5. Position and install the fanfold media into the supply bin.
6. Install the side bracket and end bracket into the fanfold supply bin. Adjust the side and end brackets to accommodate the media size; close but not touching the media.

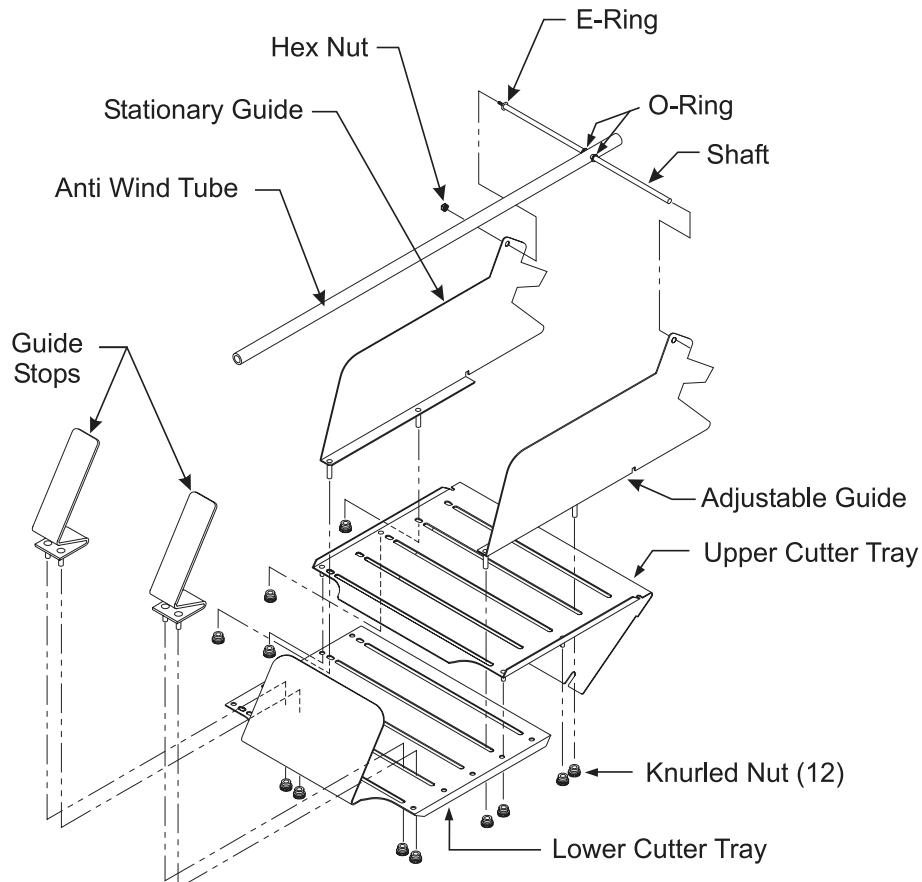


Figure 6-12. Cutter Catch Tray Length and Width Adjustments

7. Load the fanfold media as illustrated on the media loading label in the printer or in the User's Guide.
8. Make sure the upper and lower media sensors are positioned to read the end of label indicator on the new fanfold media.
9. Close the media cover.
10. Reconnect the power cord to the printer.
11. Reconnect the power cord to the power source. Place the power switch in the On (I) position.
12. Refer to Section 2 of this manual and configure the printer for fanfold media.

INTERNAL ZEBRANET PRINTSERVER II OPTION

This kit (part # 46689) includes the parts necessary to install the Internal ZebraNet II PrintServer option into the 105SL.

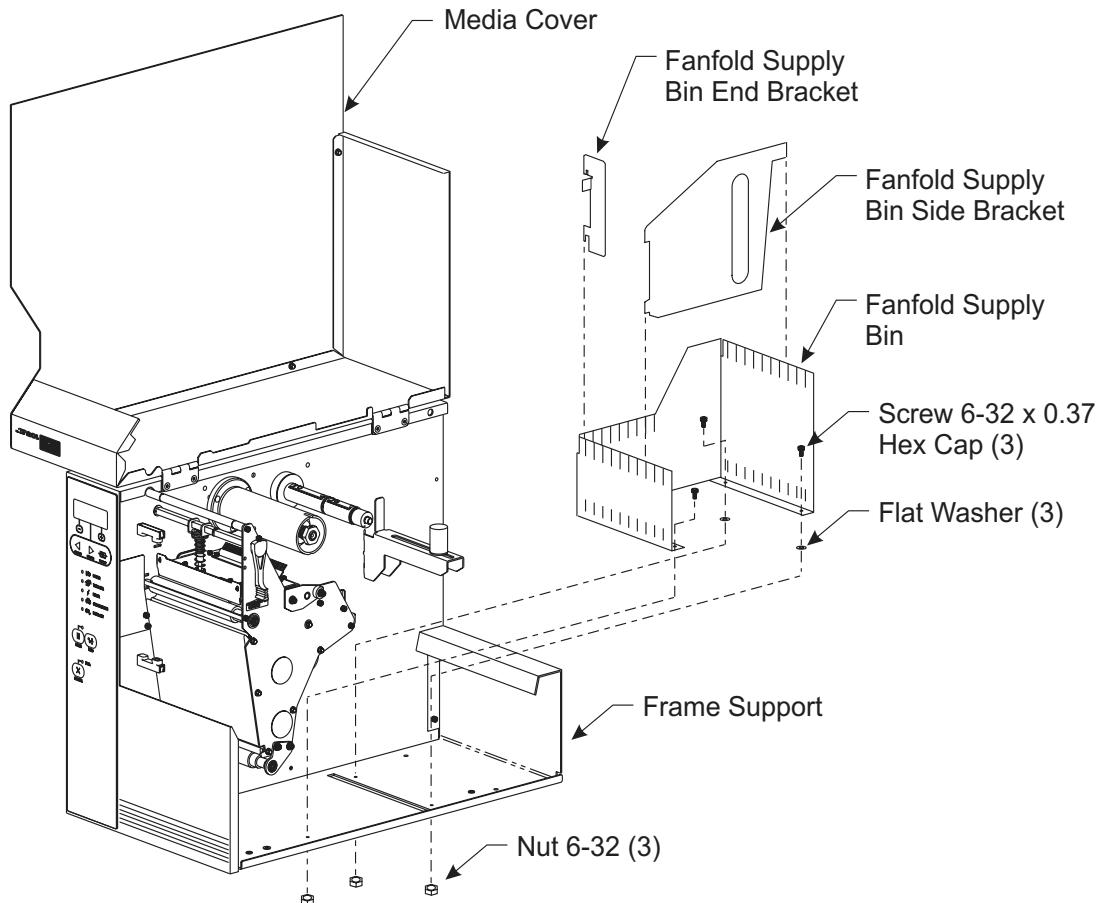


Figure 6-13. Internal Fanfold Supply Bin Installation

NOTES: *The parallel port on the back of the printer is not operational when the internal PrintServer II is installed. The hardware of the PrintServer II mounting bracket covers the parallel port.*

After you have finished installing the PrintServer II hardware; refer to the appropriate section of the printer User's Guide for information on establishing a connection for your network type.

CAUTION:



OBSERVE PROPER ELECTROSTATIC SAFETY PRECAUTIONS WHEN HANDLING ANY STATIC-SENSITIVE COMPONENTS SUCH AS PRINTED CIRCUIT BOARDS AND PRINTHEADS.

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (**O**) position and disconnect the AC power cord. Disconnect the data cables.
2. Refer to Figure 6-14. At the rear of the printer, remove the two screws and the blank cover plate or an existing optional interface board positioned next to the serial and parallel interface connectors.
3. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.

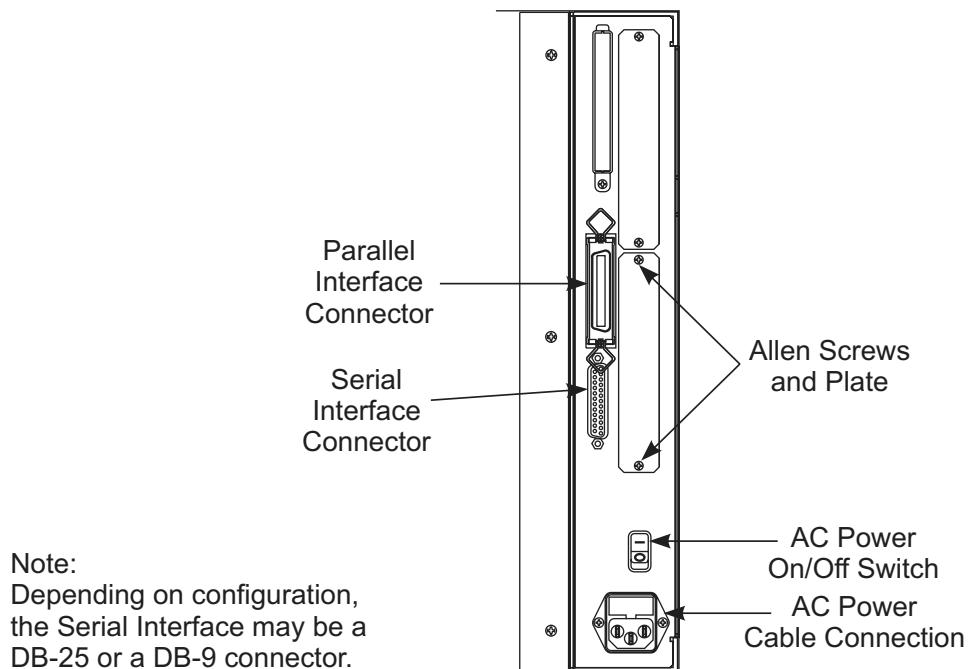


Figure 6-14. Rear Panel

4. Insert the ribbon cable and PrintServer II through the mounting slot.

NOTE: *Figure 6-15 illustrates 105SL printers with configuration numbers 10500-0XXX-XXXX and 10500-1XXX-XXXX. Figure 6-16 illustrates 105SL printers with configuration numbers 10500-2XXX-XXXX and 10500-3XXX-XXXX.*

5. Fold the cable and the ferrite bead back over the mounting bracket as shown in Figure 6-15 or Figure 6-16. Connect the ribbon cable connector into the keyed Interface data cable connector on the main logic board. Use connector J4 on printers with configuration numbers 10500-0XXX-XXXX and 10500-1XXX-XXXX. Use connector P21 on printers with configuration numbers 10500-2XXX-XXXX and 10500-3XXX-XXXX.
6. Fasten the PrintServer II interface board in place with the cover plate screws removed in step 2.
7. Check all small cable connectors along the back of the main logic board for secure connection. Reinstall the electronics cover.

NOTE: *This kit includes a label printed with the Ethernet MAC hardware address for the PrintServer II.*

8. Remove the backing from the label and affix it to the back of the printer.
9. Reconnect the power cord and the data cables to the printer.
10. Reconnect the power cord to the power source. Place the power switch in the On (I) position.
11. Consult with your System Administrator before configuring the PrintServer II for your network!

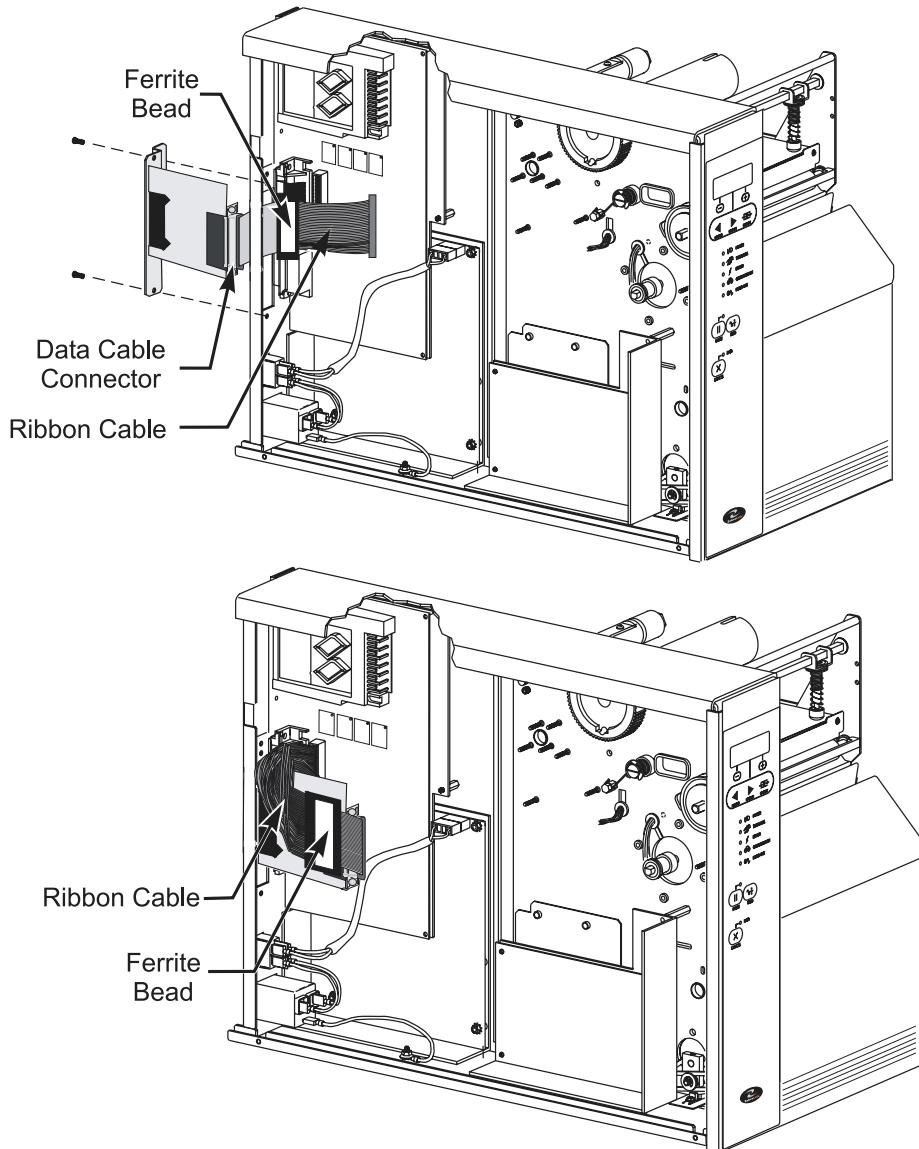


Figure 6-15. Internal PrintServer II Installation (Printer Configurations 10500-0XXX-XXXX and 10500-1XXX-XXXX)

EXTERNAL ZEBRANET PRINTSERVER II OPTION

External ZebraNet PrintServer II (part # 46692), as shown in Figure 6-17, plugs directly into the printer's parallel port. Use the following procedure to install and test the ZebraNet PrintServer II.

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (**O**) position and disconnect the AC power cord. Disconnect the data cables.
2. Attach the PrintServer II device directly into the parallel port on the printer. Secure the PrintServer II to the printer with the wire clips.
3. Insert an active 10BaseT cable into the Ethernet connector on the back of the PrintServer II device.
4. Reconnect the power cord to the printer.

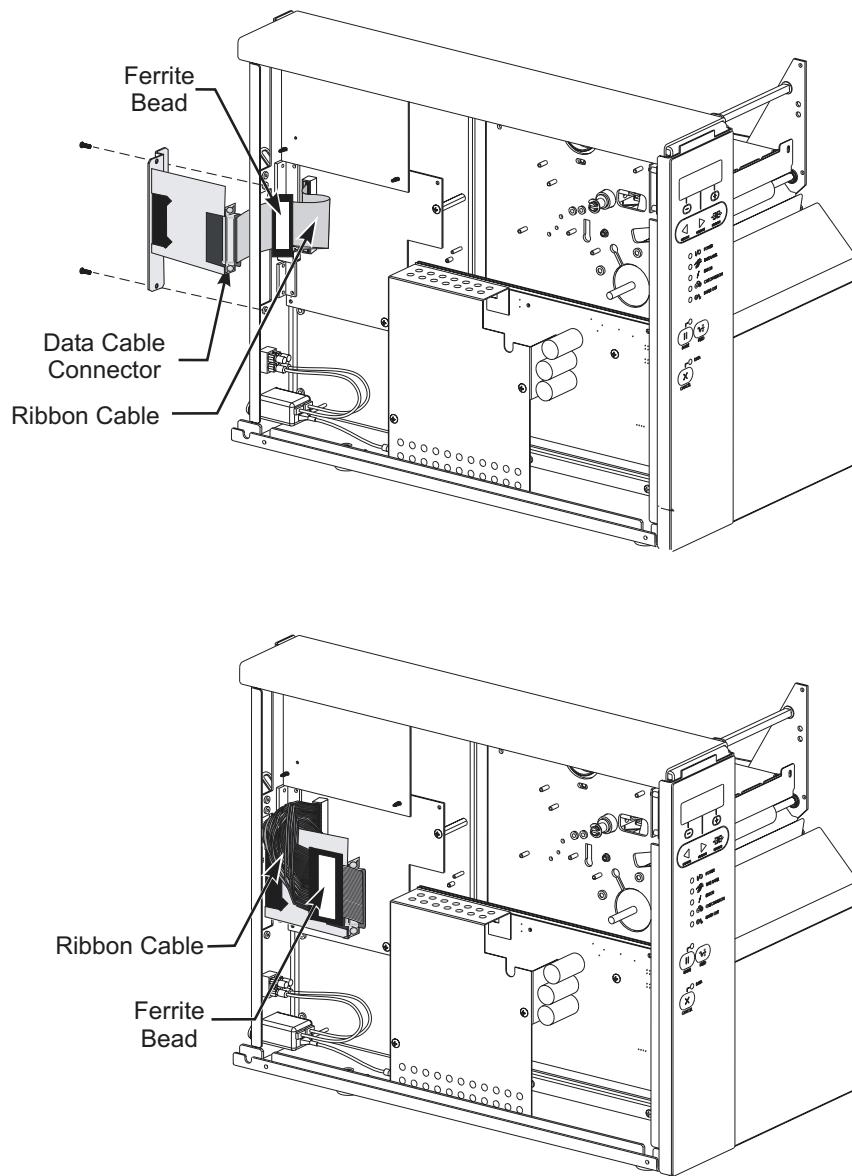


Figure 6-16. Internal PrintServer II Installation (Printer Configurations 10500-2XXX-XXXX and 10500-3XXX-XXXX)

5. Reconnect the power cord to the power source. Place the power switch in the On (I) position.
6. The status indicator flashes orange during the POST (Power-On Self Test) phase and changes to green when stabilized.

NOTE: *A 4" wide by 6" long label is recommended for printing the configuration label. If the label is smaller, some information may print outside the label area.*

7. Press the test button located on the back of the ZebraNet PrintServer II. A configuration label prints.
8. Check the label to see if the printer is configured for external PrintServer applications. If not, enter Configuration mode and configure for external Printserver applications.

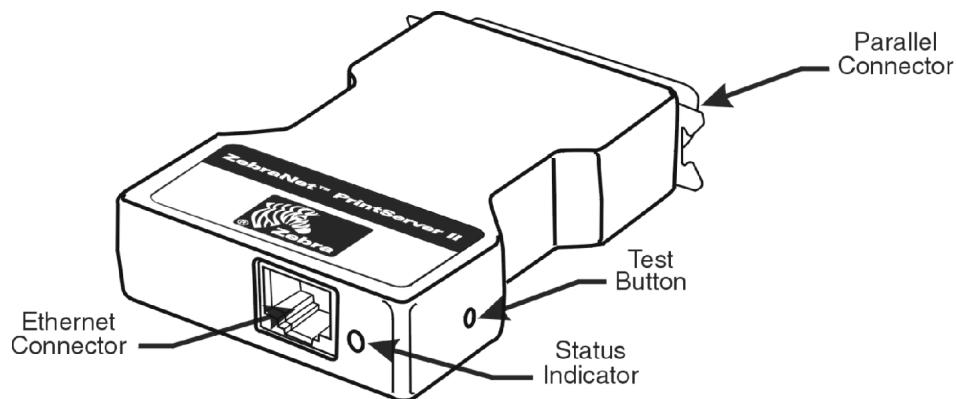


Figure 6-17. External PrintServer

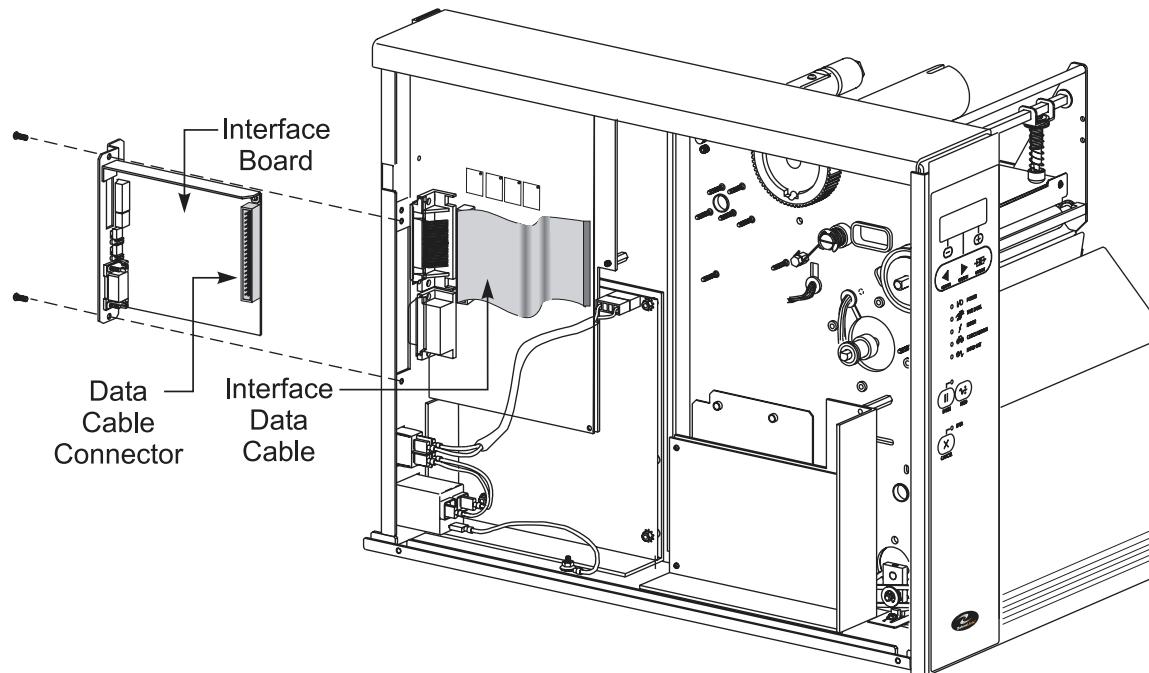
COAX COMMUNICATIONS INTERFACE BOARD OPTION

This kit (part # 48925) includes all the parts necessary to install the Coax Communications Interface Board option into the 105SL. Use the following procedure to install and set up the interface board.

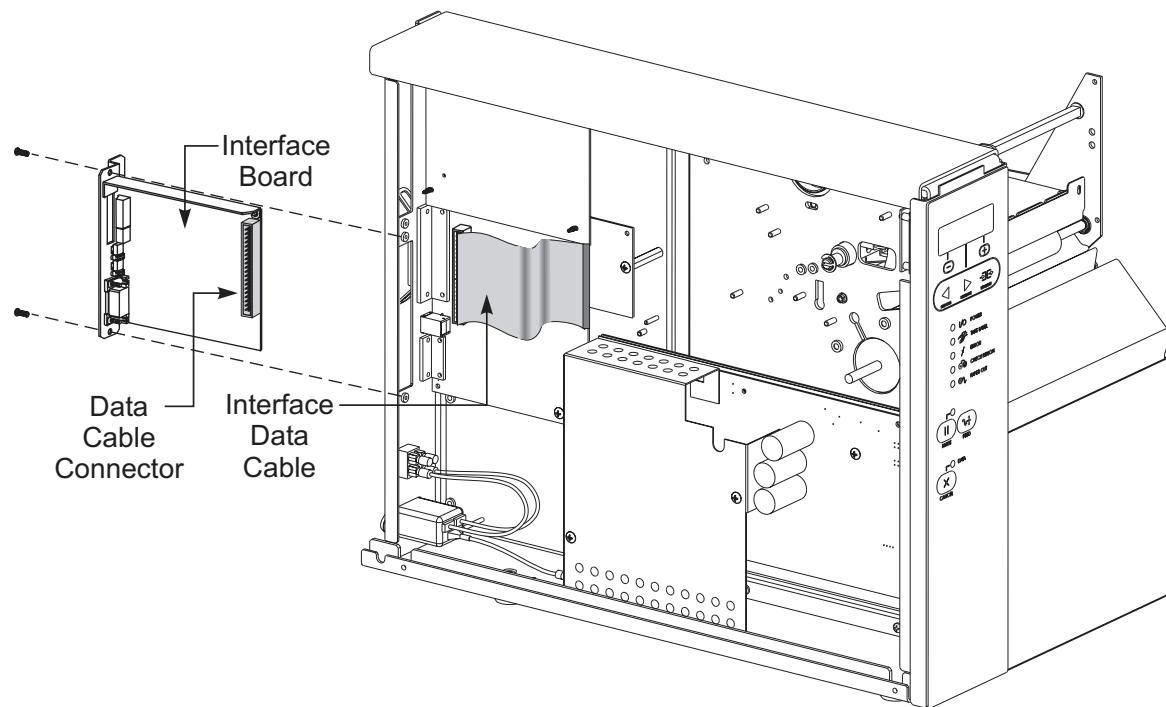
1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (**O**) position. Disconnect the AC power cord.
2. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.
3. Refer to Figure 6-14. At the rear of the printer, remove two screws and the blank cover plate next to the parallel and serial data ports.

NOTE: *Figure 6-18 illustrates 105SL printers with configuration numbers 10500-0XXX-XXXX and 10500-1XXX-XXXX. Figure 6-19 illustrates 105SL printers with configuration numbers 10500-2XXX-XXXX and 10500-3XXX-XXXX.*

4. Refer to Figure 6-18 or Figure 6-19. Plug the 40 pin interface cable into the keyed interface data cable connector on the main logic board. Use connector J4 on printers with configuration numbers 10500-0XXX-XXXX and 10500-1XXX-XXXX. Use connector P21 on printers with configuration numbers 10500-2XXX-XXXX and 10500-3XXX-XXXX.
5. Insert the coax interface board into the mounting slot. Attach the other end of the interface data cable into the data cable connector at the rear of the coax interface board.
6. Dress the ribbon cable behind the coax interface board as you slide the board completely into the printer.
7. Fasten the coax interface board in place with the two screws used for the blank cover.
8. Reinstall the electronics cover.
9. Refer to Figure 6-20. Connect the 9-pin coax adapter cable connector to the mating connector on the coax interface board.



**Figure 6-18. Coax Communications Interface Board Installation
(Printer Configurations 10500-0XXX-XXXX and 10500-1XXX-XXXX)**



**Figure 6-19. Coax Communications Interface Board Installation
(Printer Configurations 10500-2XXX-XXXX and 10500-3XXX-XXXX)**

10. Connect the coax cable from the host computer to the mating connector on the adapter cable.

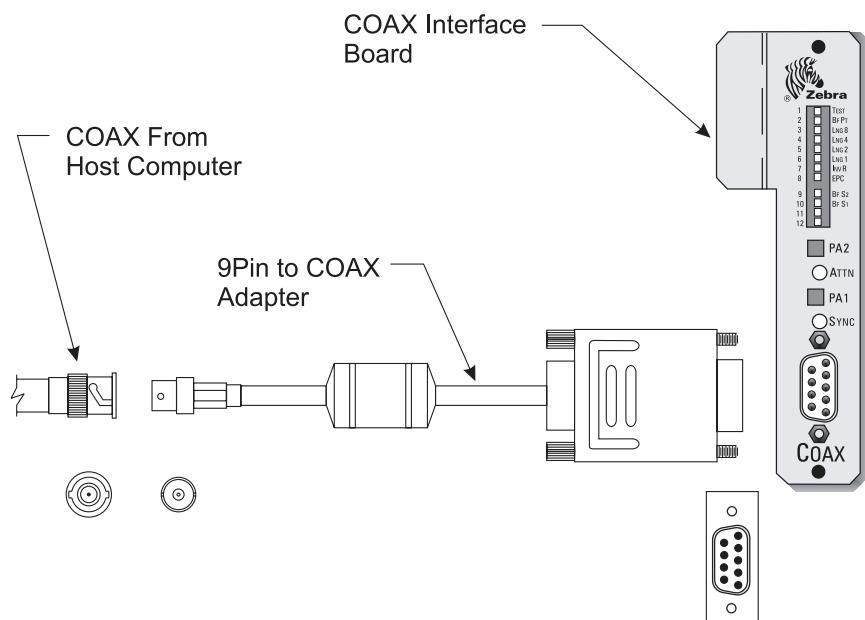


Figure 6-20. Coax Adapter Cable and Interface Hook up

NOTE: *After setting the DIP switches, turn the printer power off (O) and back on (I). With the exception of DIP switch number 2, the printer monitors the positions of the DIP switches only during the Power-On Self Test (POST). The EBCDIC buffer print function is enabled whenever DIP switch number 2 is placed in the "Right" position.*

- Refer to Table 6-3. Set the dip switches in the correct position for this application.

Table 6-3. Coax Dip Switch Setting

Test Mode				
Switch #1	Description			
Left	Normal label printing section.			
Right	When printer power is applied, the coax interface performs a self test. A self test label printout lists the coax interface software revision, selected language, results of RAM/ROM tests and a sample code 39 bar code.			
EBCDIC Buffer Print				
Switch #2	Description			
Left	Normal operation (received EBCDIC data is translated to ASCII Data).			
Right	Received EBCDIC data prints as large characters which are readable hex equivalents. Use only for troubleshooting with the printer in the "Diagnostics" mode.			
Default Language Selections				
Switch #3	Switch 4	Switch 5	Switch 6	Language Selected
Left	Left	Left	Left	0 -Multinational
Left	Left	Left	Right	1 - USA/Canada (Factory setting)
Left	Left	Right	Left	2 - Austria/Germany
Left	Left	Right	Right	3 - Belgium
Left	Right	Left	Left	4 - Brazil
Left	Right	Left	Right	5 - Canada (French)
Left	Right	Right	Left	6 - Denmark/Norway
Left	Right	Right	Right	7 - Finland/Sweden

Table 6-3. Coax Dip Switch Setting (Continued)

Right	Left	Left	Left	8 - France
Right	Left	Left	Right	9 - Italy
Right	Left	Right	Left	A - Japan
Right	Left	Right	Right	B - Japan (English)
Right	Right	Left	Left	C - Portugal
Right	Right	Left	Right	D - Spain
Right	Right	Right	Left	E - Spanish Speaking
Right	Right	Right	Right	F - United Kingdom

NOTE: The language character sets 1 - US/Canada and B - Japan (English) are the same. The character sets for D - Spain and E - Spanish Speaking are the same.

Intervention Required Message		
Switch #7	Description	
Left	Inhibits the sending of the "Intervention Required" (IR) status message.	
Right	When a printer error condition is monitored by the coax interface for a period of at least 10 minutes, an "Intervention Required" (IR) status message is sent to the host.	
Early Print Complete		
Switch #8	Description	
Left	An "Operation Complete" status message is sent to the host after a label format is completely printed. The host can then send the next label format to be printed.	
Right	Enables the "Early Print Complete" function. The host can send additional print jobs to the printer without waiting for the actual completion of the current print job. The printing status sent to the host reflects the label formats received, not the ones completed.	
Buffer Size Selection		
Switch #9	Switch #10	Description
Left	Left	3564 Byte buffer
Left	Left	3440 Byte buffer
Left	Right	1920 Byte buffer
Left	Right	960 Byte buffer
Switch 11	Not Active	
Switch 12	Not Active	

12. Reconnect the power cord and the data cables to the printer.
13. Reconnect the power cord to the power source. Place the power switch in the On (I) position.
14. Ensure the printer configuration is set as shown in Table 6-4.

Table 6-4. Setting Printer Configuration for Coax

Parameter	Setting
Parallel Port	Twinax/Coax

15. Send a sample label format from the host computer to the printer to test for proper operation.

TWINAX COMMUNICATIONS INTERFACE BOARD OPTION

This kit (part # 48924) includes the parts necessary to install the Twinax Communications Interface Board option into the 105SL. Use the following procedure to install and set up the interface board.

1. Refer to RRP No. 1 on page 4-10 and place the power switch in the Off (**O**) position. Disconnect the AC power cord.
2. Refer to Figure 6-14. At the rear of the printer, remove the two screws and the blank cover plate or an existing optional interface board positioned next to the serial and parallel interface connectors.
3. Refer to RRP No. 2 on page 4-12 and remove the electronics cover.

NOTE: *Figure 6-21 illustrates 105SL printers with configuration numbers 10500-0XXX-XXXX and 10500-1XXX-XXXX. Figure 6-22 illustrates 105SL printers with configuration numbers 10500-2XXX-XXXX and 10500-3XXX-XXXX.*

4. Refer to Figure 6-21 or Figure 6-22. Plug the 40 pin interface cable into the keyed interface data cable connector on the main logic board. Use connector J4 on printers with configuration numbers 10500-0XXX-XXXX and 10500-1XXX-XXXX. Use connector P21 on printers with configuration numbers 10500-2XXX-XXXX and 10500-3XXX-XXXX.

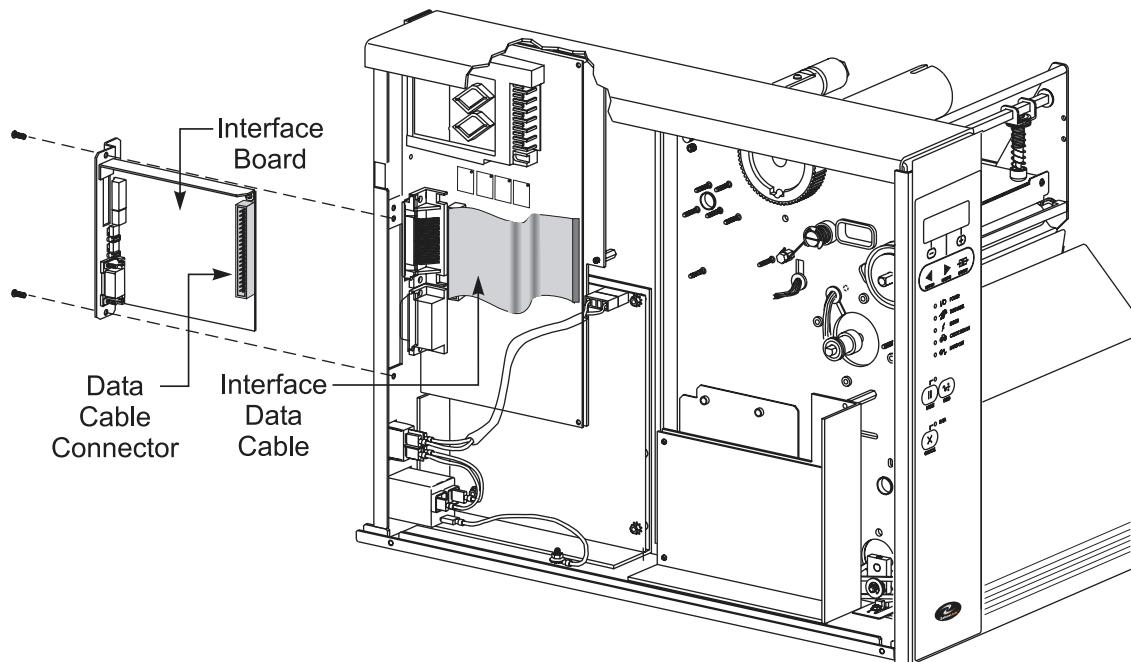


Figure 6-21. Twinax Interface Board Installation (Printer Configurations 10500-0XXX-XXXX and 10500-1XXX-XXXX)

5. Insert the twinax interface board into the mounting slot. Attach the other end of the interface data cable into the data cable connector at the rear of the twinax interface board.

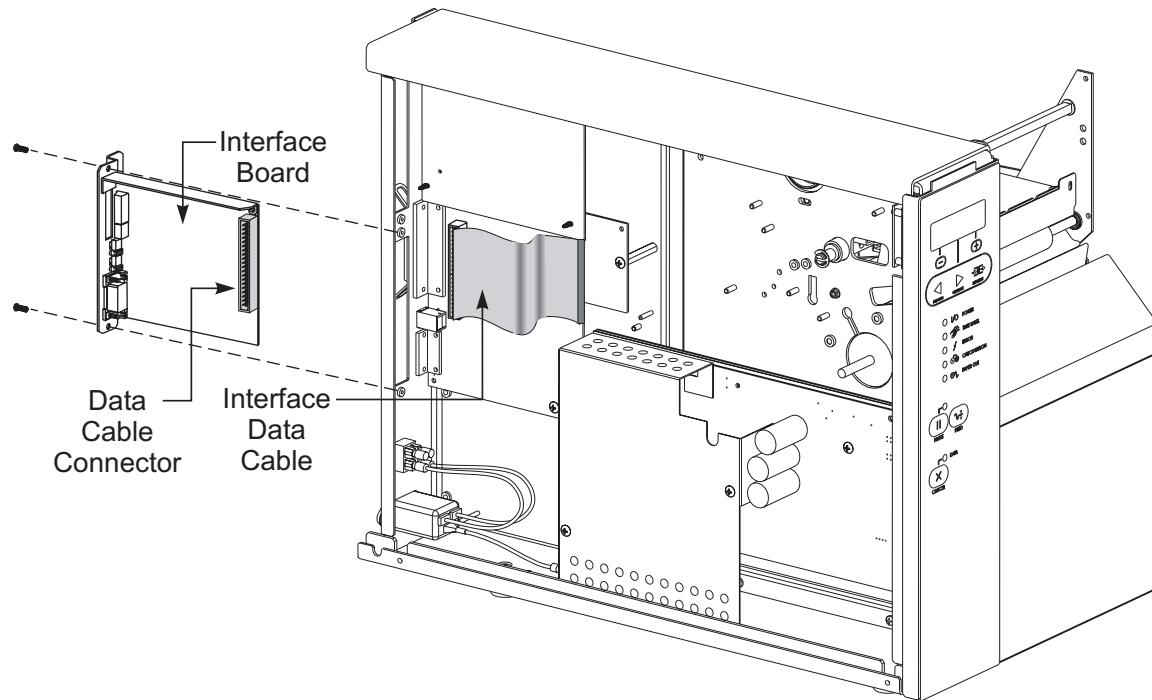
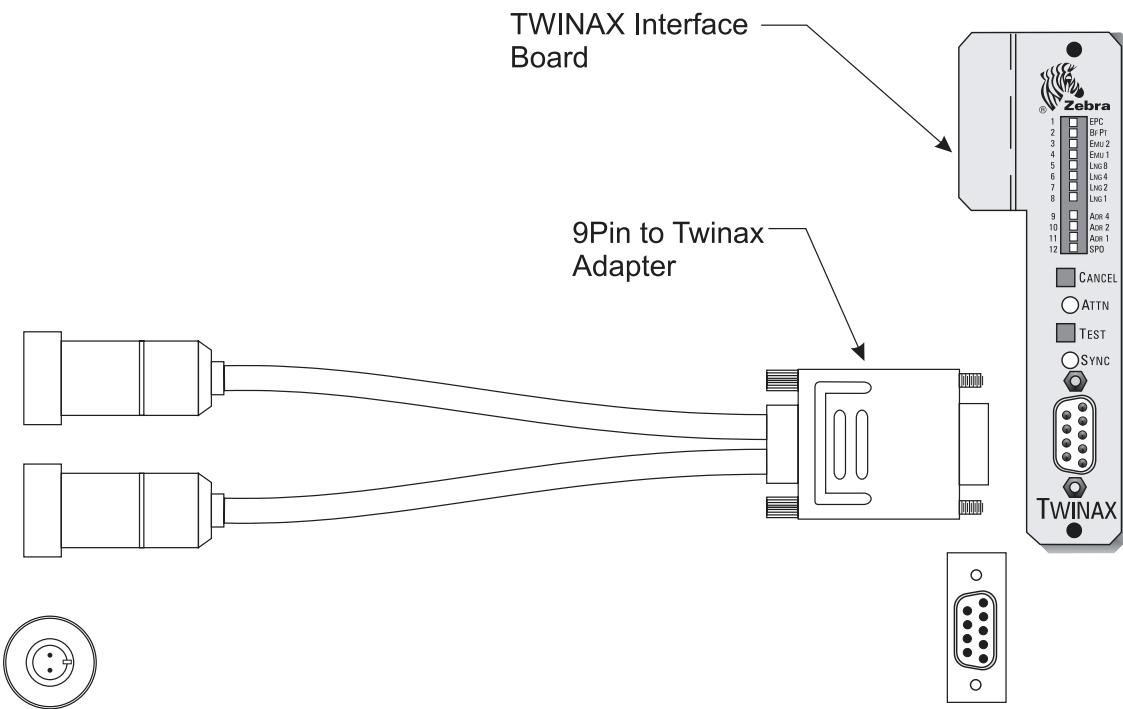


Figure 6-22. Twinax Interface Board Installation (Printer Configurations 10500-2XXX-XXXX and 10500-3XXX-XXXX)

6. Dress the ribbon cable behind the twinax interface board as you slide the board completely into the printer.
7. Fasten the twinax interface board in place with the two screws used for the blank cover.
8. Reinstall the electronics cover.
9. Refer to Figure 6-23. Connect the 9-pin twinax adapter cable connector to the mating connector on the interface board.
10. Connect the twinax cable from the host computer to the mating connector on the adapter cable.

NOTE: *After setting the DIP switches, turn the printer power off (O) and back on (I). With the exception of DIP switch number 2, the printer monitors the positions of the DIP switches only during the Power-On Self Test (POST). The EBCDIC buffer print function is enabled whenever DIP switch number 2 is placed in the "Right" position.*

11. Refer to Table 6-5. Set the dip switches in the correct position for this application.
12. Reconnect the power cord and the data cables to the printer.
13. Reconnect the power cord to the power source. Place the power switch in the On (I) position.
14. Ensure the printer configuration is set as shown in Table 6-6.
15. Send a sample label format from the host computer to the printer to test for proper operation.

**Figure 6-23. Twinax Connections****Table 6-5. Twinax Dip Switch Setting**

		Print complete		
Switch #1	Description			
Left	An "Operation Complete" status message is sent to the host after a label format is completely printed. The host can then send the next label format to be printed.			
Right	Enables the "Early Print Complete" function. The host can send additional print jobs to the Zebra printer without waiting for the actual completion of the current print job. The printing status sent to the host reflects the label formats received, not the ones completed.			
EBCDIC Buffer Print				
Switch #2	Description			
Left	Normal operation (received EBCDIC data is translated to ASCII Data).			
Right	Received EBCDIC data prints as large characters that are readable hex equivalents. Use only for troubleshooting with the printer in the "Diagnostics" mode			
Printer Emulation Selections				
Switch #3	Switch 4	IBM Printer Configured		
Left	Left	5256 Model 3		
Left	Right	5225 Model 4		
Right	Left	5224 Model 2		
Right	Right	4212 Model 2		
Default Language Selections				
Switch #5	Switch 6	Switch 7	Switch 8	Language Selected
Left	Left	Left	Left	0 -Multinational
Left	Left	Left	Right	1 - USA/Canada (Factory setting)
Left	Left	Right	Left	2 - Austria/Germany
Left	Left	Right	Right	3 - Belgium
Left	Right	Left	Left	4 - Brazil

Table 6-5. Twinax Dip Switch Setting (Continued)

Left	Right	Left	Right	5 - Canada (French)
Left	Right	Right	Left	6 - Denmark/Norway
Left	Right	Right	Right	7 - Finland/Sweden
Right	Left	Left	Left	8 - France
Right	Left	Left	Right	9 - Italy
Right	Left	Right	Left	A - Japan
Right	Left	Right	Right	B - Japan (English)
Right	Right	Left	Left	C - Portugal
Right	Right	Left	Right	D - Spain
Right	Right	Right	Left	E - Spanish Speaking
Right	Right	Right	Right	F - United Kingdom

NOTE: The language character sets 1 - US/Canada and B - Japan (English) are the same. The character sets for D - Spain and E - Spanish Speaking are the same.

Cable Address Switch Settings			
Switch #9	Switch 10	Switch 11	Address Selected
Left	Left	Left	0 – (Factory Setting)
Left	Left	Right	1
Left	Right	Left	2
Left	Right	Right	3
Right	Left	Left	4
Right	Left	Right	5
Right	Right	Left	6
Right	Right	Right	7 – (Use in Diagnostic Mode Only)
Star Panel Overdrive			
Switch 12	Description		
Left	Normal Operation		

Table 6-6. Setting Printer Configuration for Twinax

Parameter	Setting
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CUTTER OPTION

The cutter is a factory installed option.





Product Support Services

Which Department Do You Need?	Zebra Technologies Corporation, USA	Zebra Technologies Europe Limited, UK	Zebra Technologies Corporation, Singapore
Zebra's Corporate Offices	333 Corporate Woods Parkway Vernon Hills, Illinois 60061-3109 Phone: +1 847.634.6700 Fax: +1 847.913.8766	Zebra House Unit 14, The Valley Centre Gordon Road High Wycombe Buckinghamshire HP13 6EQ, UK Phone: +44 (0) 1494 472872 Fax: +44 (0) 1494 450103	
Internet Web Site: For current information about us, our products, and our services.		http://www.zebra.com	
Technical Support via the Internet: For 24 hour a day ZIP Support™.		http://support.zebra.com	
FAX On-Demand: For automated product information (US and Canada) For Supplies (US Only)		+1 888.267.9181 +1 800.753.6160	
Technical Support: For questions on the operation of Zebra equipment and Zebra software you already own, call your distributor or contact us. <i>Please have your Model and Serial Numbers available.</i>	Phone: +1 847.913.2259 Fax: +1 847.913.2578 Hardware e-mail: hwtsamerica@zebra.com Software e-mail: swtsamerica@zebra.com	Phone: +44 (0) 1494 768298 Fax: +44 (0) 1494 768210 e-mail: tseurope@zebra.com	Phone: +65 842-0322 Fax: +65 842-0366 e-mail: tsasiapacific@zebra.com
Repair Service Department: For in-factory service and repair.	Phone: +1 847.913.2259 Fax: +1 847.821.1797 e-mail: rsamerica@zebra.com	Phone: +44 (0) 1494 768382 Fax: +44 (0) 1494 768241 e-mail: rseurope@zebra.com	
Technical Training Department: For Zebra product training courses available for your staff.	Phone: +1 847.793.2614 Fax: +1 847.821.1492 e-mail: ttamerica@zebra.com	Phone: +44 (0) 1494 472872 Fax: +44 (0) 1494 768210	
Inquiry Department: For product literature and distributor/dealer information.	Phone: +1 847.793.2600 x1291 e-mail: inquiry4@zebra.com	Phone: +44 (0) 1494 472872 Fax: +44 (0) 1494 450103 e-mail: mseurope@zebra.com	
Customer Service Department (US) and Singapore Internal Sales Department (UK): For printers, parts, media, and ribbon, call your distributor or contact us.	Phone: +1 847.634.6700 x1294	Phone: +44 (0) 1494 768316 Fax: +44 (0) 1494 768244 e-mail: cseurope@zebra.com	Phone: +65 842-0322 Fax: +65 842-0908 e-mail: csasiapacific@zebra.com

Regional Sales Offices

Asia/Pacific

Zebra Technologies Corporation

Singapore

Phone: +65 8420322

Fax: +65 8420366

Hong Kong

Zebra Technologies Corporation

Hong Kong

Phone: +852 2111.0210

Fax: +852 2235.9098

Korea

Zebra Technologies Corporation

Seoul, Korea

Phone: +82 2 595.0727

Fax: +82 2 595.0728

United Kingdom

Zebra Technologies Preston Ltd.

Preston, United Kingdom

Phone: +44 (0)1772 797555

Fax: +44 (0)1772 693000

France

Zebra Technologies Europe Ltd.

Paris, France

Phone: +33 (0)155 209393

Fax: +33 (0)155 209399

Italy

Zebra Technologies Europe Ltd.

Bologna, Italy

Phone: +39 051 638-8606

Fax: +39 051 418-9092

Latin America

Zebra Technologies Corporation

Miami Lakes, Florida U.S.A.

Phone: +1 305.558.8470

Fax: +1 305.558.8485

South Africa

Zebra Technologies Corporation

Cape Town, South Africa

Phone: +27-21-712-0408

Fax: +27-21-712-9828

Germany

Zebra Technologies Europe Ltd.

Obertshausen, Germany

Phone: +49 (0) 6104 709900

Fax: +49 (0) 6104 709922

Japan

Zebra Technologies Corporation

Tokyo, Japan

Phone: +81 45-340.2055

Fax: +81 45-340.2056

Scandinavia

Zebra Technologies Europe Ltd.

Ballerup, Denmark

Phone: +45 44 209 929

Fax: +45 44 209 910

Product Support Services

ZIP Support™

Zebra Internet Product Support is putting technology to use for you.

- High-speed, accurate, intuitive database utilizes text and graphics.
- Available any time — all time zones. 24 hours a day, 365 days a year.
- Questions can be identified, diagnosed, and resolved all in one brief, easy, on-line session.
- A visit costs as little as a local internet access phone call.
- ZIP Support is updated regularly by Zebra corporate product experts, guaranteeing the most comprehensive, timely product information available.

Technical Support

Expert telephone support for your Zebra equipment.

- Zebra's fully trained technical support staff is here to answer your questions.
- We are able to recreate end-user situations with a full complement of Zebra equipment.

Fax-On-Demand

Immediate delivery of product information to your fax machine.

- Provide your fax number and the item number of the document you would like to receive.
- Product specifications are sent directly to your fax machine.

Zebra Factory Depot Services

Offers end users and resellers a full range of maintenance choices including expedited service and options installations

- Quality factory maintenance by resident Zebra trained and certified technicians to bring your Zebra products back to factory standards.

- Service options include:

- **ZebraCare™ Extended Maintenance Agreement**
Contracted return-to-depot service and repair.
- **Zebra Factory Repair Service**
Flat rate in-factory repair service and options installation.
- **Third Party Field Support**
Contact our Inquiry Department for the name of a qualified field service provider near you.

Technical Training

Quality programs that enhance the value of your Zebra printers.

- Involved in all stages of product development, Zebra technical trainers are knowledgeable about all aspects of Zebra printers.
- Training options include:
 - **Factory Training**
Classes are conducted in our Training Centers located at our corporate offices in Vernon Hills, Illinois and European Office in High Wycombe, UK.
 - **On-Site/Custom Training**
Classes tailored to the needs of your business.

All students attending Zebra courses receive professionally prepared training materials.

Customer Service

At Zebra, customer service is not an afterthought, it's a way of doing business.

- Zebra blends people and technology together to provide the highest level of customer service.
- In-depth knowledge of both customer applications and the total Zebra product line allows customer service representatives to provide quick and accurate recommendations.

Excellent customer service provides you, the customer, the right solution to fit your needs.